AMERICAN GAS ASSOCIATION

Monthly

JUNE
1961

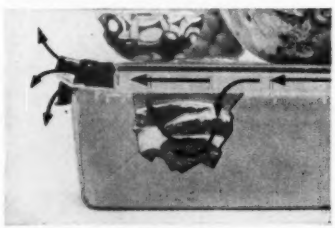
Only 1 refrigerator-freezer —the new No-Frost RCA WHIRLPOOL gives so many modern automatic features

and saves money because it's Gas!

SAVES TIME! **EXCLUSIVE ICEMAGIC®** *replaces every cube you use, automatically!* NO TRAYS to empty or fill. A steady supply of ice drops into the server; all you do is use it! Only an RCA WHIRLPOOL refrigerator has this ice-maker, proved by years of consumer use.

NOW! **NO FROST—EVEN IN THE FREEZER!** There's *no frost to de-frost* in this zero-degree freezer. Yet you can freeze foods right at home—hold over 92 lbs. of frozen foods. The right temperature is *sealed in* by Million-Magnet* doors, with special magnets in door gaskets.

SAVES TIME! **EXCLUSIVE JET-COLD SHELF** chills a *new* way, *with new speed!* Tiny jets of arctic air *inside the shelf* let this special shelf chill food *up to 3 times faster than an ordinary refrigerator shelf!* Quick and safe for desserts, salads, any food or liquid. You *only* find it in an RCA WHIRLPOOL!



SAVES FOOD! **NEW JET-COLD MEAT CHEST!**

All new, all over! New space-saving lines —it fits *flush* to walls and cabinets on all sides. New easy-open doors. New design has more room inside. No coils stick out to spoil the lines —this handsome RCA WHIRLPOOL *looks* built-in, even when it isn't! Choose pink, yellow or white.

Saves you money, too! In this *one* refrigerator, you get *every* advantage: built-in look . . . color choice . . . all those wonderful new food-keeping features . . . PLUS the fabulous refrigerating system designed around a silent flame, with no moving parts to wear out or break down.

Gas saves you money on fuel bills, too. So *choose Gas*. There simply isn't a better buy than a modern automatic, *Gas* refrigerator-freezer like this!

Guaranteed by Good Housekeeping

AMERICAN GAS ASSOCIATION

RCA Whirlpool GAS APPLIANCES

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LIVE MODERN FOR LESS WITH... GAS

* Through the participation of Whirlpool Corporation in A. G. A.'s space-sharing program, this advertisement will appear in the following magazines in 1961: PARENT'S June; LADIES' HOME JOURNAL, July; McCALL'S July; BETTER HOMES & GARDENS, July and August; GOOD HOUSEKEEPING, May and September

The Cover Photo

This month's adventure into four colors for the cover was needed to do justice to South Jersey Gas Company's Hospitality House kitchen as color-styled by Caloric Appliance Corporation's Beatrice West

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THE eyes of nearly all in the gas industry seem to be turning to the future. . . . Even the operating men, those devotees of day-to-day practical procedure, took some peeks into tomorrow at their annual Combined Distribution and Production Conference last month (story on page 2) . . . and they saw some exciting things. . . . For example, what could be more thrilling than the thought of unlimited supplies of gas lying right under our feet . . . and not 10,000 feet down, but at or near the surface, locked up in vast deposits of "low-grade" coal and shale . . . awaiting only the key of know-how to free them. . . . This was the outlook presented by Dr. Martin Elliott, in his paper on long-range fuel supplies delivered during that conference. . . . Another "futuristic" development—thermoelectricity from gas—is revealed to be already in use in important industrial applications here and now, by a member gas company (article on page 8). . . . We are fortunate to be able to publish, in conjunction with this application story, major portions of a technical paper from the recent Research and Utilization conference, which explains in terms most of us can follow just how gas-fueled thermoelectric generators work (article on page 11). . . . For those who wish still further technical details, this complete paper is available from the A. G. A. Research Bureau. . . . More stories on important new research developments opening up new worlds of gas service will be published in future issues of the MONTHLY. . . . That's a promise for the near future.

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Operating men look to the future

Automobiles powered by gas fuel cells, portable gas appliances, global transport of refrigerated natural gas, and synthetic gas in unlimited quantities are but a few of the promising gas industry possibilities explored at the A. G. A. Combined Distribution and Production Conference held in Philadelphia May 8-12.

In all, 190 speakers appeared on the five-day program, making the conference the largest gas industry meeting of the year outside the annual A. G. A. Convention. Approximately 1,600 operating men and executives attended.

Besides the full week's schedule of indoor sessions, the conference also featured an outdoor exhibit of new equipment displayed by 38 manufacturers.

The combined conference was sponsored by the A. G. A. Operating Section, with H. L. Fruechtenicht, Consumers Power Company, chairman; E. F. Trunk, Laclede Gas Company, vice chairman; and A. B. Lauderbaugh, The Manufacturers Light & Heat Company, second vice chairman. Individual sessions were conducted by various Operating Section committees.

Keynote speaker for the conference was Lester T. Potter, president, Lone Star Gas Company and president, A. G. A. He addressed the opening General Session on Monday, presided over by J. T. Stine, Jr., chairman, Distribution Committee.

Mr. Potter set forth and recommended to the conference a set of gas industry goals as enumerated by the A. G. A. Gas Industry Development Committee. Mr. Potter called the G.I.D. statement a "masterpiece" of management thinking, and said that "the gas industry speaks through the G.I.D. Committee."

According to the statement of purposes as outlined by Mr. Potter, the gas industry seeks to be:

- An industry imbued with the public interest, rendering the highest standard of gas service to the maximum public it can serve.
- An industry possessing harmonious relationships among all its segments.
- An industry deserving and enjoying the highest measure

Opening session speakers: E. F. Trunk, left; Dr. V. C. Hargroves; L. T. Potter; J. T. Stine; Col. P. L. DeBevoise; C. G. Simpson

Chairmen of Monday afternoon sessions: F. E. Raglin, left; C. F. Miller; R. L. Jones; and Robert Marples

Combined Distribution and Production

Conference presents outdoor equipment exhibit, 190 speakers on industry problems and possibilities

of public confidence and esteem.

• An industry exemplifying the best of the private enterprise system.

• An industry operating under equitable and reasonable regulatory conditions.

• An industry organized, equipped and mobilized to maintain and strengthen its competitive position by efforts in every field to develop public desire for its appliances, equipment and services.

• An industry alert to its future requirements and possibilities, constantly searching for new ideas, with adequate and continuing research and development programs.

• An industry alert to current and impending problems and opportunities, organized to deal with them with respect to their relative urgency.

• An industry fully aware of the excellence of gas in its myriad uses, determined to project its benefits wherever, and as far as, possible.

• An industry continually staffed with able and educated personnel dedicated to the achievement of these aims.

These goals, said Mr. Potter, can be achieved through "the science of joint effort, and the art of supervision."

"Supervision," he stated, "should consist of something more than telling someone what to do and how to do it.

"The ability to supervise is not a talent—it has to be learned. No one is a born leader of men. The man who knows how to lead is one who has learned how."

Mr. Potter suggested that it should be a prime task of the Association to study and apply the science of joint effort.

"The route to better days," he concluded, "is finding better recipes for people working together."

Mr. Potter's address followed welcoming remarks by Charles G. Simpson, Philadelphia Gas Works, the host company, and presentation of service awards to 10 committee members.

Following Mr. Potter was Robert Alexander, Cincinnati Gas and Electric Company, presenting a paper by John C. Bruckmann, Long Island Lighting Company, on "Some Claim

Tuesday speakers (from front left): C. F. Miller, T. Snedden, F. G. Hamaker, Jr.; C. J. Davis, C. R. DeHaven, E. C. Schroeder, E. B. Wirth

Chairmen of Tuesday's specialized sessions: J. H. Betty, left; K. G. Scantling; H. G. Kaess; J. W. McAmis

E. F. Trunk presents Distribution committee service awards to J. H. Dennis, M. Anuskiewicz, Jr., E. C. Hoy, R. W. Alexander, Frederic Peters, and J. S. Janssen

Production committee awards went to L. L. Newman, left; C. G. Milbourne; P. L. Covell; D. B. Seifried; L. R. Billett; R. Kyle

"Gasarama," Michigan Consolidated Gas Company's 40-minute spectacular, dramatized fascinating science facts about gas. Below: Glass tube demonstration illustrates flame propagation

Chairmen of Friday special sessions during Production Conference: Robert Kyle, left; B. M. Keys; D. F. Cundari; R. W. Gilkeson

Thursday: D. V. Buchanan, B. C. Altman, A. L. Wallace, A. B. Lauderbo... K. M. Morse, H. P. Wheeler, O. A. Gray, M. A. Elliott, and A. W. ...

Factors in Gas Operations."

Mr. Bruckmann opened his discussion by pointing to "the increase in claims against gas companies, as well as the increase in jury awards, in some cases to seemingly astronomical amounts."

Citing several case histories and a number of claim settlements running to hundreds of thousands of dollars, Mr. Bruckmann's paper commented:

"Many people think these things are not the responsibility of operating men, but they are wrong. Operating men may have assistance of others in the company in this task, but the responsibility remains. There are many operating men who realize this and who have skill in the claim and public accident prevention fields. Proper protection of your company from catastrophic or repeated severe losses requires that *all* your foremen and supervisors realize this responsibility. If they are unfamiliar with claims and public accident prevention techniques, you must arrange for them to receive the necessary assistance.

"The increased activity on the part of plaintiff's lawyers and the increasing size of awards against solvent defendents should inevitably lead to a more serious consideration of the causes of gas incidents and methods of correction."

Speakers at Wednesday General Session: J. J. Krueger, left; T. Lee Robey; A. H. Mogensen; and Solon Walker

Combined A. G. A.-EEI outdoor exhibit displayed diggers, trenchers, vehicles and other new equipment by 38 manufacturers

Chairmen of Wednesday special sessions: P. C. Hoy, left; A. R. Milliron; P. B. Thompson; C. R. Newlin; H. W. Keller

Operating Section Managing Committee, Section Chairman H. L. Fruechtenicht presiding, met to plan activities for the coming year

Mr. Bruckmann recommended continuous close discussions between operating personnel and claims personnel in order to combat claims and the accidents which cause them.

Closing the session was an inspirational talk by Col. P. L. DeBevoise, retired national secretary, Salvation Army in America, and a showing of the A. G. A. Accident Prevention Committee's film, "Flame Propagation."

At the Tuesday General Session, C. F. Miller, chairman, Customer Service Committee, presiding, a highlight was the talk by Charles R. DeHaven, Philadelphia Gas Works, on "Measuring the Pulsebeat of Our Customers." Mr. DeHaven's address is reproduced in full elsewhere in this issue.

C. J. Davis, Long Island Lighting Company, told delegates "How To Make a Quality Control Program Work."

Among Mr. Davis' points were these:

- Return defective products to the manufacturer so that he may inspect them himself.
- Put complaints in written form, and request written replies.
- Don't be afraid to reject a defective shipment.
- Have several approved suppliers, rather than depending on one.
- Don't, however, blame the manufacturer if your specifications were wrong.
- Be realistic. Don't make requirements in excess of your actual needs.

Other papers presented at the session included "Techniques of Gas Main Mapping," by E. C. Schroeder and E. B. Wirth, Vernon Graphics of Pennsylvania, Inc.; "Isolation of Services—the Key to Successful Corrosion Control," by Thomas Snedden, Northern Illinois Gas Company; and "A. G. A. Research in Domestic Cooking Equipment," by F. G. Hammaker, Jr., A. G. A. Laboratories. Portable, plug-in gas appliances were among the developments discussed by Mr. Hammaker. Texts of these papers are available from the Operating Section, A. G. A.

At the Wednesday General Session, T. L. Robey, A. G. A.'s director of research, reported to delegates on the progress of gas research; Solon Walker, East Tennessee Natural Gas Company, spoke on "Corrosion Control and Management"; and A. H. Mogensen, industrial consultant, spoke on "Work Simplification—A Top Management Philosophy."

Mr. Mogensen's main theme was the need for taking a fresh look at every task to see if a better and easier way to

do it could be found. Progress, he suggested, does not come from doing things in the "same old way," especially since the first man to do a job may not have been a particularly clear or imaginative thinker.

Among developments touched on by Mr. Robey were new types of gas burners, including catalytic and infrared; concealed, fold-away appliances; appliances with higher capacity, more compact design and increased automation; and new types of gas air conditioners.

The session concluded with a 40-minute presentation of the award-winning "Gasarama" science show for schools produced by Michigan Consolidated Gas Company.

The "Gasarama" showing drew perhaps the largest attendance except for the opening session, the audience including many of the ladies accompanying their husbands to the conference.

For the single General Session devoted to Production, on the fourth day of the combined conference, delegates filled a large hall to overflowing to hear several papers of unusual interest.

In the session presided over by D. V. Buchanan, chairman, Manufactured Gas Production Committee, the talks followed presentation of seven committee service awards by A. B. Lauderbaugh, second vice chairman of the Operating Section.

Drawing keen interest was Dr. Martin A. Elliott's analysis of "The Long-Range Supply of Gaseous Fuel." Dr. Elliott is director, Institute of Gas Technology.

Dr. Elliott was optimistic about the future supply of gas, provided the gas industry plans now to develop supplemental sources of supply to augment natural gas reserves.

The necessity for supplemental supplies arises, in his estimation, from the fact that rising demand for gas will within a few decades far outstrip the rate at which new natural gas reserves can be discovered and tapped.

Utilizing the best available statistical information, Dr. Elliott projected a 2 to 3 per cent annual rise in gas demand. At this rate, he said, supplemental sources of gas will be needed by the latter part of this century.

These supplemental sources are at hand, he assured listeners, in the form of vast deposits of coal and oil shale from which high-quality gas can be made by known processes in quantities sufficient to meet all demands.

In regard to costs of production, Dr. Elliott gave figures indicating that "synthetic gas is in an execllent long-range competitive position with electricity generated from coal."

Dr. Elliott also mentioned Canadian and Mexican gas, and liquefied gas imported by tanker, as potential supplemental sources of gas, but said that these cannot be counted on as important sources of supply.

The prospect of overseas shipment of natural gas by tanker was raised in "The Storage and Transportation of Low Temperature Fuels," by A. W. Mellen, H. A. Mason, and F. Himmelberger, all of Air Products, Inc. The paper was presented by Mr. Mellen.

Though storage and transport under pressure have been applied to propane and butane for some time, low-temperature liquefaction also is coming into use. Mr. Mellen referred to refrigerated storage plants in the Persian Gulf, and to three refrigerated LPG tankers under construction in Japan.

In methane, Mr. Mellen indicated that Russia may be ahead of the West.

"All phases of storage and transportation of liquefied methane have been successfully carried out from a technical, if not an economic, standpoint. The LNG storage has been carried out not only in this country, but in England, France, and Russia. Only in Russia do we know that this is being done on a routine basis. We are also aware that the Russians are transporting liquid methane in tank trucks in certain areas near Moscow. The Russians have reported that it has been used safely as a motor fuel. Excellent octane numbers, extremely low air pollution, and a cheaper cost than gasoline have been cited as incentives for its use. It is somewhat difficult to visualize the economics involved here; nevertheless, it is interesting to note the safe usage.

"Most people in the gas industry are aware of the ocean transportation project completed on an experimental basis by the Methane Pioneer a year or two ago."

As to why commercial projects for liquid methane have not already commenced, Mr. Mellen suggested that both political and economic factors are involved.

"The technical aspects of liquefying and handling natural gas, even in large volumes, pose no significant problems for the cryogenic industry," Mr. Mellen said. This is evident in recent success of cryogenics in handling liquid hydrogen and other gas under more stringent low-temperature conditions than necessary with natural gas.

Mr. Mellen reported excellent progress toward storage of liquefied natural gas. In this connection, he mentioned a 9 per cent nickel steel alloy developed as a cryogenic material which could make possible low-temperature storage of liquefied natural gas in conventional tanks over 100,000 barrels in size.

A. G. A.-sponsored research on submerged concrete tanks for cryogenic storage of natural gas also was mentioned.

Cost factors at present appear to bar liquefied methane as a competitor to pipeline gas, but there are good prospects for useful applications in energy-shy areas of the world.

Mr. Mellen concluded:

"We believe that the time for use of liquefied natural gas for peak shaving and for ocean transportation projects is approaching rapidly. A reasonable guess at this time is that both types of projects will be a commercial reality within the next five years. Expanded use of these techniques in the gas industry must ultimately depend on their economics and their competitiveness with other alternatives of supplying energy. We are confident that technology will provide further improvements with resulting economies. As these occur, we in the cryogenic field look forward to working together with the gas industry."

In "The Government's Helium Conservation Program and Its Impact on the Natural Gas Industry," H. P. Wheeler, Jr., U. S. Bureau of Mines, reviewed the Federal government's current program for conservation of helium recovered from natural gas.

The program, set up for the stockpiling of helium as an important defense resource, calls for extraction of helium from natural gas enroute to fuel markets, and storage of the helium in the government-owned Cliffside gas field near Amarillo, Texas, until needed. The government is offering long-term purchase contracts for the helium, and offers to erect the necessary extraction plants where the companies do not desire to do so themselves.

(Continued on page 31)

TRUE and KLEMP
"A GOOD OLD FASHIONED SALES REVIVAL"
A new, "live" presentation bringing to you practical and successful strategies used by the world's selling champions and designed to unleash your own selling skills and to increase your income.
If Your Job Is
• To sell anything to anybody
• To persuade people
• To influence people
• To motivate people
• To lead people
THIS CLINIC IS FOR YOU!
Never before has one presentation given you so many of the proven, practical sales techniques that can make you a selling champion.
150 Practical Sales Ideas Packed into 150 Mosic Filled Minutes
★ TAKE THE FEAR OUT OF SELLING
★ MEETING OBJECTIONS
★ HOW TO MOTIVATE
★ MASTER THE SELLING SITUATION
★ GO OPENINGS GO
★ ANALYZE YOUR PROSPECT
★ IDEAS YOU CAN USE TOMORROW
8 Dynamic Acts Designed To Make YOU A Better Salesman Right NOW!
Sponsored By
DATE
TIME
PLACE

Two spellbinding sales specialists will be on hand to convert Conventioneers in "Big D"

Convention to hit high note with sales songs

Convention-goers will be singing and selling at a "Good Old Fashioned Sales Revival" to be a highlight of the A. G. A. Convention in Dallas October 2.

The revival will open at the Sheraton-Dallas Hotel at 2:00 p.m. with a roof-shaking rendition of such grand old tunes as: "A Wonderful Way to Start a Sale," "Gee, But It's Great To Be a Salesman," and that all-time favorite, "Selling Days Are Here Again."

At the close of these stirring "hymns," the revival leaders will take over. Brothers Herbert True and Fred Klemp, experienced sales training specialists, will mount the stage to begin a meeting that they guarantee will light a blue flame in the hearts of all gas men, and unleash the hidden selling talents of all who attend.

The revival leaders aim to show promotion men how to master all selling situations. They plan to "take the fear out of selling," remove the anxieties that plague many an otherwise effective salesman, initiate and rebuild confidence, and, in general, turn salesmen into Svengalis.

For eight acts, the wonder salesmen will jump on make-believe prospects with fool-proof openings and "magic" first words to soften resistance. After the customer is hooked, they will demonstrate how to analyze him and size up his defenses. They'll dig down in song and story, and appeal to basic wants and emotions. They'll set up situations and then determine whether to play them cautiously and wait for a big break, or to strike immediately.

If the cornered customer objects or says "No!", Brothers True and Klemp will produce enough ammunition to stage dazzling displays of sales power, and dispatch all objections crisply and cleanly. If temporarily thrown, the two will reveal a number of special moves to make up quickly the lost ground.

Motivation of prospects will be searchingly analyzed. What makes a prospect tick, and how promotion men can wind him up, will be outlined.

All this will be done by Brothers True and Klemp, who are eminently qualified to lead such a sales revival.

Herbert True is a man of many facets and talents, and has spellbound audiences—including the 1959 A. G. A. Convention in Chicago—with his unusual methods of presentation. He is vice president of Visual Research Inc., and has been heard over NBC-TV and at more than 30 universities across the country. Dr. True is a former professor of marketing at Notre Dame University. He is an author of a book, "The Care and Feeding of Ideas," and has written more than a score of features for leading sales and advertising journals. For further recommendations convention-goers can ask anyone who heard Dr. True at Chicago.

The other half of the revival team, Fred Klemp, is president of the Fred Klemp Organization, producers of dynamic sales meetings. For over 20 years, Mr. Klemp has acted as sales and marketing consultant, creator, producer, lecturer, and master of ceremonies for such clients as Skelly Oil Company, Butler Manufacturing Company and many others. He produced Kansas City's widely acclaimed "Industry On Parade" shows. Now he is working with Herbert True to fire up sales enthusiasm in the gas industry.

Between the two of them, True and Klemp promise to make the revival in Dallas a high-Btu performance guaranteed to set gas sales sizzling.

Jointly sponsored by the Residential Section and the Industrial and Commercial Section of A. G. A., the meeting will be open to all Conventioneers who wish to attend.

● *Thermoelectric generators are in actual use today pro*

Thermoelectricity is in use–now

Northern Illinois Gas Company engineers have constructed a model gas furnace, operated by a thermoelectric generator

Thermoelectric generator, in actual operation against pipeline corrosion, is checked by N-I Gas Co. engineers

Electric power from gas heat, for years a scientific possibility and an engineer's dream, is now practical reality.

Northern Illinois Gas Company has completed field tests on a small 10-watt thermoelectric generator and is planning to use a 20-watt unit and a larger 100-watt unit, in one of the first industrial applications of thermoelectric power generation.

The utility currently is working on a program of cathodic protection for large mains and pipelines, and is looking forward to the near future when its research will place thermoelectric generators in furnaces and other gas appliances using electric services for controls and lights.

In the present application, the thermoelectric-generated current is used to counteract ground current that corrodes steel pipe.

The device is ideally suited, according to Northern Illinois, for work in remote areas where electric power is not otherwise available. Soon, the unit will be field evaluated in powering meters, valve controls, and microwave relaying equipment.

Guiding the new developments at Northern Illinois are Dr. Spencer R. Milliken, research director, and Earl L. Tornquist, who headed research activities for years, and is now retired and acting as a consultant to the company.

The first fruits of the work of these men—based on the physics principle that heat applied to junctions of certain dissimilar metals will produce a direct current of electricity—are appearing now in the reports on the field tests of their 10-watt generator. The unit, custom-made for Northern Illinois by Minnesota Mining and Manufacturing Company, has done a "perfect job" in its eight months of use in combating pipeline corrosion.

Installed in place of a rectifier, the unit, on actual test, delivered 2.9 amperes at 3.3 volts, using 1.1 cubic feet of natural gas per hour. The current reproduced by this unit improved the cathodic protection on two 16-inch coated steel mains, changing the voltage to earth from 620 mv. to 1200 mv.

odic protection for pipelines—and other uses are near

While initial cost of the thermoelectric generator is much higher than that of a rectifier (from $250 to $450, depending upon amperage), N-I engineers believe the price could be competitive if the units were mass-produced.

The thermoelectric generator is believed to be durable, although the company has not yet had sufficient time to determine this. One of the generator's great advantages is that it can be short-circuited without being damaged.

The internal resistance of the unit is approximately .92 to 1.0 ohms, depending on the temperature. The maximum output of the generator is approximately 9 to 12 watts, again depending on the temperature, and is obtained at the balance point, that is, when the load resistance equals the internal resistance. At this point, the load voltage is one-half of the open circuit voltage, and current value is about 3 to 3½ amperes.

According to Northern Illinois engineers, two 10-watt thermoelectric generators of the type on test could protect the entire length of the company's 140-mile, 22-inch diameter pipeline from East Dubuque to Des Plaines, Illinois.

Similar field testing operations are planned for the new 20-watt unit and the larger 100-watt Westinghouse-built generator, which now are undergoing laboratory tests.

In the new 100-watt unit, gas is burned in an assembly at the base of the unit. The hot gases pass through a central insulated chimney. Electricity is generated by the thermoelectric phenomenon through a number of thermoelectric couples mounted around the outside of the chimney. The hot gases provide heat for the hot junction. The cold junction is at room temperature.

The device has an output of 11 volts at 10 amperes of direct current. A converter changes this output to 48 volts at 2.08 amperes of direct current.

After field tests of this larger unit, Dr. Milliken envisions a variety of uses for the thermoelectric generator. According to the research director, commercial applications have been overlooked until recently because of the

(Continued on page 31)

E. L. Tornquist, pioneer of N-I's thermoelectric research

Thermo Electric Generator
DEVELOPED BY MINNESOTA MINING AND MFG CO.
OPERATION...
1. SWITCH AT X POSITION OPERATES RADIO
2. SWITCH AT Y POSITION OPERATES FAN
3. SWITCH AT Z POSITION ENERGIZES REFRIGERATION UNIT.
Small Model of Refrigerating unit
Surface temperature 35° Farenheit

Early 8-watt model of unit used in N-I research program

Below: L. E. Burmeister checks 20-watt unit at LaGrange lab

Above: Dr. S. R. Milliken, D. W. Gunther, and 100 watt generator

Industrial relations round table

Prepared by
A. G. A. Personnel Committee

Edited by W. T. Simmons
Assistant Personnel Manager
Philadelphia Electric Co.

● **The myth of retirement**—In the December, 1960 issue of *Dun's Review,* Mr. Clarence B. Randall stated that selective retirement (choosing some to stay on when others are handed the gold watch of dismissal) cannot be wisely and fairly carried out as policy for a large group. The lawyer, the doctor, or the otherwise self-employed may make his own decision in this critical matter, but not the man who is responsible for the well-being of a fine institution. There just has to be a rule—and all must be governed by it. Come 65, or whatever the predetermined age, there are many fine Americans, who are not only altogether fit, but are actually at the very peak of their powers. Some at 70, 75, or 80, look young, act young, and, in fact, are young. Superficially, it seems wrong to deprive a company of the great abilities of such men.

But that is only one side of the picture. Offsetting the good men there is, unhappily, in every company a less favored group. These are the men, who at 60, or even less, have so slowed down that they no longer pull their weight. Such people do more than block the advancement of abler, younger men. Because they have reached top responsibilities, their lethargy exercises a braking action on the entire corporation.

To choose who should retire in these two contrasted groups may appear simple, but in practice it is complex, and utterly destructive to sound human relationships. There will always be one or two on each side who are easily recognized. Everyone admires good old Charlie, who stands straight as a ramrod and never looked better. On the other hand, everyone feels sorry for poor old Fred, who has had so much sickness and trouble in his life that he is just going through the motions of working. However, opinions differ over the many men between these two extremes. The youngsters think they all ought to quit. Those who are approaching retirement themselves think they all look good.

Who is to choose? Who is so all-wise, or so calloused in conscience, that he dares to look the whole company in the face and say this man shall stay and that man shall go? What doctor or psychologist has such all pervasive understanding of the human body or of the human mind that he can devise reliable tests to determine fitness, so that management may be relieved of making the choice?

The die is cast, however, long before age 65. The question whether a man will be prepared psychologically when his turn comes to face the challenges and satisfactions of retirement is irrevocably determined before he reaches middle life. It is not at 65, but at 45, that the basic decisions are made. If, before 45, a man has found nothing that fires his imagination, nothing that arouses his creative powers and enlists his best efforts except for daily shuffling papers on his desk, he will be a pathetic failure in retirement. If he has never risen above his job and gone all out for some task or cause—totally unrelated to his business, he will be a hopeless case at 65, and a perpetual problem to his family and his friends.

But if his life has been overflowing with infectious enthusiasm for ideas and ideals that have their roots in a world outside the routine of mere money-making, sheer personal momentum will carry him on as long as he lives, and he will grow in usefulness to the world about him. He will not have to learn to fish at a time when his arthritis hardly permits him to hold a rod.

Furthermore, there is an added bonus. The physical and intellectual activity and joie de vivre generated will actually prolong life at the same time that it deepens satisfaction. Retirement is challenge and excitement, not inaction. It is privilege, not abnegation.

● **Errors break contract ice**—Next time you make a bargaining blunder, soothe yourself with this comedy of errors committed by a babe in the woods of industrial relations.

In drafting a first contract with a major union, management of a midwestern plant dictated to a stenographer unfamiliar with industrial relations jargon. The draft went to the negotiating table without having been proofread. Here are some of the provisions set before the union team:

"Each employee shall have the opportunity to cancel his authorization for dues deduction and if not revolted it shall remain in effect for another year."

"During the course of this agreement, the union will not conduct a strike and the company will not conduct a lookout."

On the question of selecting an arbitrator, the company proposed choosing one from a panel offered by the "Federal Mediation and Consolation Service."

● **Arbitration decision**—Tests may be helpful in picking the man to promote—Written tests can help you choose between job applicants . . . sometimes. A frequently-found promotion clause reads that the senior worker is to get the job if the skill, ability, experience, and physical fitness of all bidders are relatively, or approximately, equal. If you have one of these clauses, the reasoning of Arbitrator Maurice O. Graff in the Caradco case (Dubuque, Iowa) will be of value to you.

In analyzing what to do under such clauses, the first step is to determine whether the skills of the job bidders are approximately equal. Can written tests be used for this? Mr. Graff states the general rule: "Management may use written tests to help determine relative capabilities of applicants." If this is so, why have some arbitrators denied management's right to use such tests? In one case an arbitrator stood behind a union that forbade its members to take welding aptitude tests to determine their qualifications for a spiral weld-type machine operator job. Another arbitrator held that a micrometer reading test couldn't be given to an applicant for a tool crib attendant job.

However, Arbitrator Graff ruled in the case before him that a clerical aptitude test could be given for a similar tool crib attendant job. What is the distinction? Mr. Graff tries to explain by pointing out that there are conditions attached to the general rule. Backtracking, he said: "Management may use tests to assist in determining the qualifications of an employee for a job, (1) if the responsibility for making the determination of qualifications is management's, (2) if the tests are reasonably adapted to the measurement of the requirements of the job, and (3) if they are used fairly and reasonably for this purpose."

The welding aptitude test was not in the cards because the welding skill required on the job could be learned in a short time. In fact, one of the employees assigned to the job had no welding experience at all. The micrometer test for the tool crib attendant job was also an unreasonable requirement since the reading of a micrometer could be learned rather quickly.

But the clerical aptitude test for the tool crib attendant job (in the case before Graff) was okay because the job description emphasized clerical duties such as keeping records of costs, instruments, and tools. It also called for checking incoming supplies against a list, making reports and calculations, and reading charts and production jobs. The company was justified in seeking some more objective measure of clerical aptitude to assist in determining which of the applicants possessed at least minimum qualifications for the clerical aspects of the job.

After ruling that management was within its rights in giving written tests, the next question to come up was: Did the tests used by management reasonably measure the required clerical aptitude? His answer was: Yes. Five tests comprised the series. They tested, (1) the ability to understand, learn, and to solve simple problems, (2) ability to compare names and numbers, (3) ability to copy numbers, (4) ability to solve simple problems of addition and multiplication, and (5) ability to copy names.

The last question the arbitrator pondered was: Did the company discriminate in administering the test? And his conclusion was: No. Tests are okay if they meet the above requirements.

Before relying on this analysis, make sure that your clause is substantially similar, and that there are no negating clauses in the contract. More important, be sure there are no side agreements or plant practices which would result in an adverse ruling in your situation.

Thermoelectricity:

Principles and applications

By JORG JANSEN

Chief, Thermoelectric Application
Transitron Electronics Corporation

In the 1950's, the research in semiconductors brought about materials which made it eventually possible to convert heat directly into electricity.

Since we are still in the early days of this revival, the problems are far from being solved. But in spite of the few years of work in this field, so much has been achieved that I can describe and discuss today the possible application of thermoelectric generators in the gas appliance field.

The operation of a thermocouple is based on two phenomena, the Seebeck effect and the Peltier effect. The Seebeck effect means that a voltage is generated between two different conductors which is proportional to the temperature. The Peltier effect means that heat is generated, or absorbed, at the junction between two different conductors when a current is passed through this junction.

A well known demonstration of these phenomena are the metallic thermocouples, being in use for decades for the measurement of temperature, e.g. platinum-platinum rhodium, chromel-alumel, or iron-constantan couples.

Their thermoelectric voltage is based on the different position of each of the joined metals in the thermoelectric series. It lies between 3 mV and 20 mV at a temperature difference of $\triangle T = 350°C$.

Since these voltages are very small and the very low efficiency of metal thermocouples makes a power conversion almost impossible, they have always been used only for temperature measurement, and generally not for electric energy conversion.

The Semiconductor Thermocouple

The discovery of the semiconductor has changed this considerably. Semiconductors show a Seebeck coefficient much higher than metals, and some of them reach efficiencies in generating electrical energy which encourage their use for power conversion.

But before going any further I should review briefly the principles of thermoelectricity. For this purpose I will make use of a simple physical picture, one which cannot always be true but which should be able to give a better understanding of what is generally known as Seebeck and Peltier effects.

The Seebeck Effect

Since the Seebeck effect comes first in the sequence of thermoelectric generation, it will be explained first. A bar of a suitable (for thermoelectric purposes) N-type semiconductor (N-bar) is joined on both ends to copper straps. One of the junctions is heated, with respect to the other, or a "temperature difference $\triangle T = T_h - T_c$" is applied. This causes an electron diffusion from the hot to the cold junction, since the concentration and kinetic energy of the free electrons increase with temperature. Consequently the cold junction becomes negatively charged with respect to the hot junction. The charge sets up an electric field causing an electron flow against the diffusion flow, until a dynamic equilibrium is achieved. Thus the temperature difference $\triangle T$ has finally established a voltage V_{on}, which can be compared to the voltage between the electrodes of a battery (chemical-electrical energy conversion) or between the ends of a conductor moved through a magnetic field (mechanical-electrical energy conversion).

In the same way the application of a temperature difference to a bar of a suitable P-type semiconductor (P-bar) leads to a voltage V_{op} between the cold and the hot junction.

In both cases the generated voltage (open circuit voltage) is proportional to the applied temperature difference $\triangle T$. The proportionality factor is the Seebeck coefficient, a material constant:

$$V_{on} = S_n \cdot \triangle T \quad V_{op} = S_p \cdot \triangle T$$

In order to make the most effective use of the bars they are joined to form a couple so that the open circuit voltages are added. When this is heated at the hot face and cooled at the cold face, the resulting voltage will be

$$V_o = V_{op} + V_{on}$$

$$V_o = (S_p + S_n) \cdot \triangle T$$

Hence the open circuit voltage V_o of a thermocouple is proportional to the combined Seebeck coefficients of the p- and n-leg.

(Excerpted from a paper presented at the A. G. A. Research & Utilization Conference, Cleveland, April 1961.)

The Peltier Effect

When we load the thermoelectric couple or "generator," a current will flow through the circuit. The carriers forming the current travel at a higher energy level in the semiconductor than in the copper bridges. In order to be capable of doing this, the electrons or holes respectively must absorb energy in entering the N-bar or P-bar respectively from the hot end and must lose energy in leaving the bars at the cold end.

The necessary energy is absorbed and rejected in form of heat (Q_{ph}, Q_{pc}). It means that through the Peltier effect heat energy is converted into electrical energy. The amount of heat per unit time is proportional to current and temperature. The proportionality factor is again the Seebeck coefficient.

Absorbed heat:

$$Q_{php} = S_p \cdot I \cdot T_h$$
$$Q_{phn} = S_n \cdot I \cdot T_h$$
$$\underline{Q_{ph} = (S_p + S_n) \cdot I \cdot T_h}$$

Rejected heat:

$$Q_{pcp} = S_p \cdot I \cdot T_c$$
$$Q_{pcn} = S_n \cdot I \cdot T_c$$
$$\underline{Q_{pc} = (S_p + S_n) \cdot I \cdot T_c}$$

The difference between the amount of heat per unit time (heat flux) entering and leaving the couple appears as electrical power in the electric circuit:

$$\triangle Q = Q_{ph} - Q_{pc} = (S_p + S_n) \cdot \triangle T \cdot I$$
$$\triangle Q = V_o \cdot I = P$$

It is seen that the energy principle is fulfilled as in any other energy conversion system.

Uses of Thermoelectric Generators in Gas Appliances

Thermoelectric generators have been used in gas apparatus for many years. In the form of so-called thermo-piles they have powered protection relays and valves. These thermo-piles have a very low efficiency because they are built from metal thermocouples. Thus their electrical output is not sufficient for powering all electric accessories. Considering accessories like fan, blower or pump motors for protective electric circuits, it seems as if the thermoelectric generator could fill in the gap.

One of its major advantages is its adaptability to a variety of heat sources and heat sinks. It can be operated by hot air, hot gases, flames or hot liquids; it can be cooled through air flow or liquid.

Main Types of Generators

For possible application in gas furnaces, water heaters, refrigerators and similar apparatus, I see two main forms of construction and operation:

In the first, the generator is an independent unit that can be built in already existing apparatus. In this case it can be of the cylindrical type, where the heat flux direction is radial away from the hot center (flame, hot liquid) to the cold mantle (preferably finned for air cooling). Or it may be of the flat type where the heat flows from the bottom (flame or hot liquid) to the top (finned or cold liquid).

In both cases the units should be mounted very close to the load, in order to decrease the length of connecting cords. On the other hand, they should be mounted so that the air stream, forced or natural, can be used for cooling.

In the second, the generator is part of the apparatus, which is probably the best solution for large furnaces. In this case it should be built up from small modules (little building blocks made up of several couples) which are mounted with their hot face to the combustion chamber so that the cold face (finned or unfinned) is exposed to the cold air stream. Or it should consist of complete generator "sheets," mounted in the same way.

The advantage of the second arrangement over the first is that the efficiency of the generator is not important since the heat (as demonstrated above) flows unaffected through the sheet or module. There is no energy loss. The temperature difference, which can be used by the thermoelectric generator, is given through the required temperature at the wall of the air duct, and the possible temperature at the wall of the combustion chamber.

In many cases it is a necessity to use modules because the existing flat surfaces are not big enough for larger couple arrangements (in form of sheets). However, even if large flat surfaces are available, modules might be preferable since they simplify replacements in case of breakdown.

Size of Generators

If generators are to be used to operate fan, blower or pump motors, the output lies between 30 and 200 W, corresponding to motor sizes of 1/20 to 1/4 HP.

Approximately 1 $\frac{W}{cm2}$ can be generated in the optimal temperature range for lead telluride. This means a generator sheet of approximately 30-200 cm^2 (4.65 — 31.0 in^2) surface and 8 mm (0.315 in.) thickness (without fins) has to be mounted between the combustion chambers. Instead of this a combination of several smaller sheets of 3-16 modules with an area of 5 x 25 cm^2 and an output of 12W each could be used.

Accessories Operated by Thermoelectric Generators

One of the most important facts about thermoelectric generators is that they are low-voltage, high-current devices. They generate a low direct voltage, and have to be loaded with a comparatively high direct current in order to operate efficiently. This has to be taken into account when choosing the accessories.

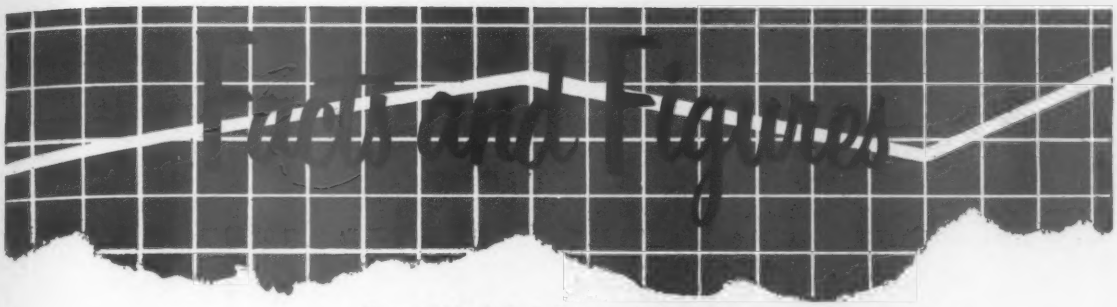
The 50W motor is no longer operated at 115V and 0.45A a. c. but has to be replaced by a d. c. motor operating at 1.5V and 34A. The 200W motor has to be changed from 115V, 1.8A a. c. to 6V, 34A d. c. The equivalent applies for the power to operate controls and ignition.

From these considerations it is readily seen that the thermoelectric generator necessitates a completely different design of the motor, the relay, etc. If currents of this size are not desirable for these small devices, the voltage has to be increased by increasing the number of couples connected in series. The same power will then be achieved with less current, and unfortunately less efficiency.

The basic performance characteristics of a d.c. motor operated by a thermoelectric generator differ considerably from the characteristics of a motor powered from the mains. The comparatively high internal resistance of the generator causes a remarkable drop of the terminal voltage with load. The designer of such motors should keep this in mind.

In general, if thermoelectric generators are introduced in the gas apparatus, all electric devices have to be adapted to the new low voltage, high current power source.

(Continued on page 18)



Prepared by A. G. A. Bureau of Statistics

Non-farm housing starts of 104,200 units in March, 1961, were 12.9 per cent above the 92,300 units in the same month a year ago. This was the first rise in number of housing starts in any one month in more than a year.

Sales of gas during the twelve months ending March 31, 1961, aggregated 91,448 million therms, which was equivalent to a 2.6 per cent rise above the 89,121 million therms sold in the previous 12-month period. Residential, commercial and other gas sales during the 12-month period ending March 31, 1961, totaled 45,530 million therms, an increase of 3.6 per cent above the 43,937 million therms sold during the previous 12-month period. Industrial gas sales totaled 45,918 million therms during the current period, and were up 1.6 per cent from the prior 12-month period.

Sales of gas to ultimate consumers during March, 1961, aggregated 9,139 million therms—a decline of 11.8 per cent from the 10,367 million therms of gas sold during March, 1960. This decrease can be attributed almost entirely to the moderately warm weather experienced during the current month as compared to the cold weather of March, 1960.

During March, 1961, residential, commercial and other gas consumers used 5,631 million therms of gas, a decrease of 20.0 per cent from the 7,042 million therms sold during March, 1960. The major factor for this decline was the decreased househeating demand created by the relatively warm weather experienced this month. This offset the positive effects of the new customers added to the gas utility lines since last year and the industrial usage of gas, up 5.5 per cent, over the same period last year.

The influence of accelerated new home construction activity during the month of March has pulled sales of gas

(Continued on page 31)

SALES OF GAS AND ELECTRIC RESIDENTIAL APPLIANCES DURING MARCH, 1961

(WITH PER CENT CHANGES FROM THE CORRESPONDING PERIOD OF THE PRIOR YEAR)

	March		February		3 Months, 1961	
	Units	Per Cent Change	Units	Per Cent Change	Units	Per Cent Change
RANGES (including built-ins)						
Gas	150,800	—13.7	124,500	—21.8	390,400	—16.5
Electric	148,200	— 6.0	128,100	—10.5	385,700	— 7.8
WATER HEATERS						
Gas	249,400	+ 0.8	206,700	— 3.8	682,200	+ 0.8
Electric	71,800	—10.6	60,300	— 0.3	184,600	— 6.4
GAS HEATING—Total	74,851	— 6.1	74,129	— 2.0	223,414	— 2.4
Furnaces	61,700	— 0.2	59,900	+ 1.2	181,300	+ 0.3
Boilers	8,251	—13.4	8,429	+ 2.1	25,514	+ 3.7
Conversion Burners	4,900	—41.7	5,800	—29.3	16,600	—30.0
OIL-FIRED BURNER INSTALLATIONS	33,271	—17.5	31,735	— 8.2	106,315	—12.2
DRYERS						
Gas	26,100	—13.0	29,100	—26.2	92,900	—13.9
Electric	57,600	— 6.8	53,900	—23.9	179,000	—13.9

Sources: Gas Appliance Manufacturers Association, National Electrical Manufacturers Association, "Fueloil and Oil Heat," and American Home Laundry Manufacturers Association.

GAS SALES TO ULTIMATE CONSUMERS BY UTILITIES AND PIPELINES DURING MARCH, 1961

(MILLIONS OF THERMS)

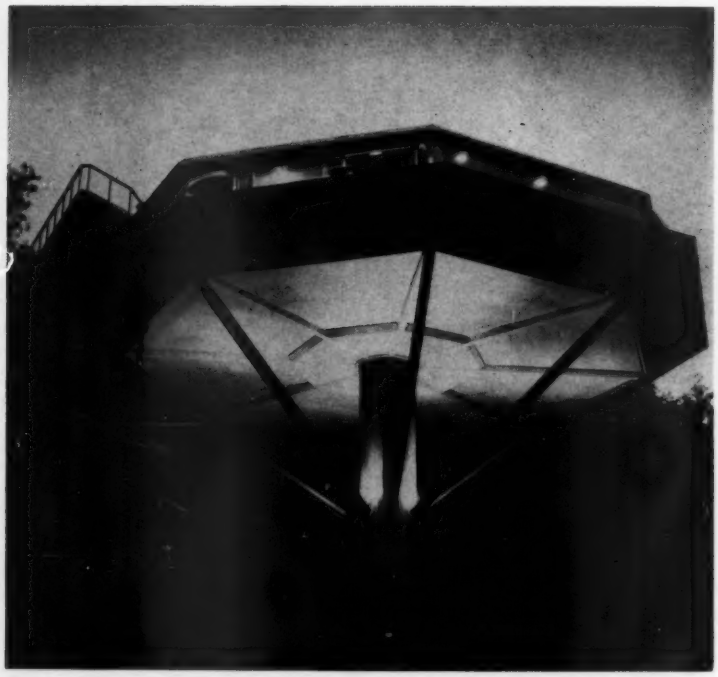
	Month of March			Twelve Months Ending March 31		
	1961	1960	Per Cent Change	1961	1960	Per Cent Change
Natural gas	8,864.7	10,036.9	—11.7	89,139.0	86,804.3	+2.7
Manufactured and mixed gas	274.5	329.6	—16.7	2,309.2	2,316.3	—0.3
Total gas	9,139.2	10,366.5	—11.8	91,448.2	89,120.6	+2.6
Residential, commercial, and other	5,631.2	7,041.5	—20.0	45,530.1	43,937.1	+3.6
Industrial	3,508.0	3,325.0	+ 5.5	45,918.1	45,183.5	+1.6
Indices (1947-1949 = 100)						
Total gas sales (A. G. A.)	276.4	313.5	—11.8			
Residential, commercial, and other (A. G. A.)	288.2	360.4	—20.0			
Industrial (A. G. A.)	259.4	245.8	+ 5.5			
Degree days (A. G. A.)	155.0	166.0	— 6.6			

PERTINENT BUSINESS INDICATORS, MARCH, 1961

(WITH PER CENT CHANGES FROM THE CORRESPONDING PERIOD OF THE PRIOR YEAR)

	March			February		
	1961	1960	Per Cent Change	1961	1960	Per Cent Change
Industrial activity, FRB (1947-49 = 100)	155.0	166.0	— 6.6	155.0	166.0	— 6.6
Consumer prices (1947-49 = 100)	127.5	125.7	+ 1.4	127.5	125.6	+ 1.5
Housing starts, non-farm (thousands)	104.2	92.3	+12.9	74.2	88.8	—16.5
New private construction expenditures ($ million)	2,756	2,875	— 4.1	2,577	2,596	— 0.8

Space-age house takes to the sky



Left: "Chemosphere" has "flying saucer" look
Above: Glass and Hollywood Hills on all sides

California boasts the only all-gas four-story house complete on one floor.

This unique home, dubbed the "Chemosphere House," rests high in the Hollywood Hills, and sits atop a 30-foot high, five-foot-thick concrete column.

The companies that erected the house, Chem Seal Corporation of America and Southern California Gas Company, planned "Chemosphere" as an example of space-age homes, run by gas and put together with chemical adhesives.

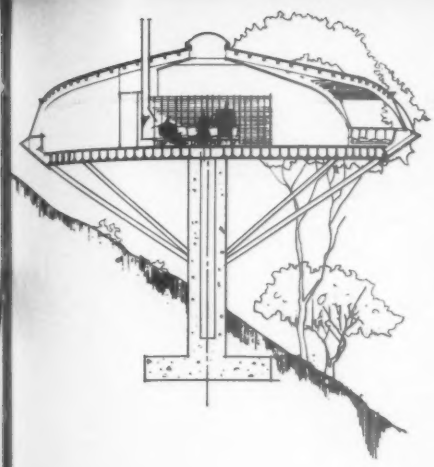
The basic idea in building the 2,200-square-foot house on top of a concrete column was to provide a footing stable enough to withstand earthquakes, landslides, high winds, and other disturbances of nature and man.

Main living space in "Chemosphere," including an all-gas kitchen, dining space and fireplace alcove, under an octagonal ceiling dome and skylight, occupies 1,400 square feet. There are four bedrooms, each with its own lavatory facilities, two bathrooms, laundry and sewing room.

"Chemosphere" is furnished throughout with the latest gas appliances: O'Keefe and Merritt deluxe built-in range and oven, and automatic washer-dryer, RCA Whirlpool gas refrigerator, and Arkla-Servel all-year gas air conditioning for complete climate control, including summer cooling, winter heating and humidity control, and circulation and ventilation regulation.

Other highlights of the space-age house are a Universal Waste King dishwasher and disposal, Redondo custom ceramic tile counters, stainless steel sinks by Zeigler Harris Company, and rich wood cabinets by Ray Herr.

Interior decoration of "Chemosphere" was supervised by the interior design committee of the National Society of Interior Designers. The unusual octagonal floorplan of the house provided a challenge for the committee's imagination and originality, a challenge which was answered by custom furnishings



Novel dwelling perched atop a concrete column embodies daring architectural dream, provides down-to-earth comforts—with gas

The "dream" house features a real gas kitchen

Gas appliances—how modern can they get?

keyed to the house's built-in seating and cabinets, as well as by a color scheme subtly complementing dominant reds incorporated in building materials by the architect.

Participating professional interior designers were Lora Alpert, Herbert Cordier, Lawrence Goulet, Margaret Hargraeves, Nina Lee, John H. Smith, and Dimney Lee Walton.

The unique design and location of "Chemosphere" posed many unprecedented problems of construction, resolved by the application of the new plastic and adhesive materials for bonding, sealing and coating. They were used, for example, in binding the supporting column in its thick underground concrete pad, in the bedding of cantilevered beams, in anchoring laminated roof beams, in integrating the roof, in sealing the continuous window sections, in ceramic floor tile work, and in various other applications.

Leonard J. Malin, a 29-year-old electronics engineer, virtually built "Chemosphere" single-handedly, with the help only of John De Le Vaux, an experienced builder, and some temporary hired help.

Although the ultra-imaginative house is rated as a "luxury" home, the methods and materials used in its construction can be adapted for homes at lower prices on steep "unbuildable" lots, or even tract homes on flat lots.

The use throughout the construction of new "miracle" compounds, synthetic rubbers and super-adhesives, is significant.

It points up the day when building materials conceivably will be joined together more by chemical-type sealants than by traditional methods, according to Chem Seal Corporation, which specially formulated the polysulfide liquid polymer and epoxy resin materials.

"Chemosphere"—run by modern-as-tomorrow natural gas, and standing tree top tall—provides a glimpse into a fascinating future.

Swimming pool, modern home and visitors are 11 stories up

Japanese home builders toured house

'House-on-the-Roof' glamorizes gas

There are few people in the Greater Pittsburgh area who have not heard about the all-gas House-on-the-Roof at Kaufmann's Department Store. And the turnstiles admitting Pittsburghers to see the house have been whirling since opening day.

While there is nothing new about model homes in this modern age, the House-on-the-Roof perched eleven stories high, smack in the middle of the downtown business section, does represent a novel approach.

The house itself is full-sized, with living room, dining area, kitchen, three bedrooms, one and a half baths, a rec-

Julia Meade cuts ribbon for opening of House-on-the-Roof

House is complete with lawn and driveway

Gas oven features waist-high broiler

Kitchen cooks and cools with gas

reation room, laundry room, and two-car garage. Gas appliances in the house include gas lights, built-in oven, top surface units, refrigerator, hot water heater, dryer and furnace.

The only concession to the roof-top location of the house is the use of wood siding and minimum brick work due to the roof's weight limitation.

The success of the promotion is a tribute to the cooperative ability of the multi-participant sponsors.

First, the three natural gas companies serving Pittsburgh worked through a superlative New Building Promotion Committee; Kaufmann's Department Store supplied the site and completely furnished the home; Edward M. Ryan, a major home builder in the Pittsburgh area, built the house; and the United States Steel Corporation participated through the many U.S. Steel products used in modern building construction.

A special preview was held on April 26 for the press and for community and business leaders. The house, its furnishings, completely landscaped lot, simulated swimming pool, and outdoor patio were completely covered in newspaper stories and on TV news shows.

On May 1, Julia Meade arrived for the official opening of the house to the public. Interviews with Julia and the ribbon-cutting ceremony were major newspaper stories, and the TV news coverage was again excellent.

On the same day the House-on-the-Roof was opened, nine duplicate all-gas homes, built by Ryan, and strategically scattered throughout the suburbs of Pittsburgh, were opened. The homes ranged in price from $19,900 to $22,-500, depending on location and lot cost.

Plans called for the House-on-the-Roof to be open for 60 days, perhaps longer. In the first 19 days, over 44,000 people toured the home. Each of the

(Continued on page 32)

Hostess displays gas dryer, furnace, water heater

Gas light guides visitors to entrance

Thermoelectricity

(Continued from page 12)

Cost Considerations

The application of thermoelectricity for domestic uses is very promising from a technical point of view. Finally, it may lead to the independence of gas apparatus from external electrical power supply.

The question, why thermoelectric generators are not yet in wide use in spite of their advantages, has two answers:

(1) The development of semiconductor thermocouples or modules had not reached a stage where the reliability and lifetime were good enough for domestic use. The technological problems were simply not solved.

(2) The semiconductor thermoelectric device was and is still uneconomical in comparison with conventional power converters. One of the reasons for this is, of course, its low efficiency, which increases the running costs above those of comparable power sources. But this is not important compared to the high capital cost of thermoelectric devices of today. Since they have just left the development stage and there is not yet a production on a large scale, they are very expensive. As usual during the development of a new device, cost factors were not the most important considerations. Thus materials, technologies and processes have been used which can easily be replaced by cheaper ones serving the same purpose.

Up to the present time devices have been assembled by skilled technicians. However, this assembly could easily be performed by unskilled girls and, at a later date, by semi-automation.

The yield of acceptable couples was very low. This will improve, of course, with the automation of the production process. Bearing this in mind, I will attempt to give approximate cost figures. This should give the possibility of judging whether the thermoelectric generator is already competitive or will be in the near future. The cost figures are based on modules, which are built up of 12 couples each. They are related to the power output for ease of comparison.

This cost chart shows that the thermoelectric generator of today is far from being competitive. This is not unusual because every new device is incredibly expensive during its infancy. But the thermoelectric generator of tomorrow will be within economic possibilities. And as soon as the market for the new power converter expands, mass production of couples and modules can be started. The cost per watt installed should reach 20-10 cents eventually.

(Ed. note: Mr. Jansen follows with several pages of technical details and formulae related to performance of thermoelectric generators. The complete paper may be obtained from the A. G. A. Research Bureau.)

Description	1959-60		1961		1962-64	
ONE COUPLE						
Materials		$ 3.22		$ 1.88		$ 1.30
Assembly		0.225		0.225		0.10
		$ 3.445		$ 2.105		$ 1.40
Yield	40%	$ 8.61	80%	$ 2.54	90%	$ 1.55
Output (watts)		2.4		3.05		3.5
Cost per Watt		$ 3.59		$ 0.83		$ 0.44
ONE MODULE						
12 couples		$103.40		$31.60		$18.60
Additional parts and assembly		11.69		5.00		3.00
		$115.09		$36.60		$21.60
Output (watts)		28.8		36.6		42.0
Cost per Watt		$ 4.00		$ 1.00		$ 0.5

Meet your Association staff

Irwin S. Schwimmer

Irwin S. Schwimmer, assistant director of the Bureau of Statistics, has worked with gas industry figures in a careful, down-to-earth manner for 13 years. Earlier, he had worked with air force figures, and left one of them, Lord Louis Mountbatten, up in the air.

Irwin is a native of Brooklyn. He attended public schools in his neighborhood, and in 1940 entered New York University to major in economics and statistics. When war broke out, Irwin enlisted in the air force, and subsequently found himself on a "fun-filled" 45-day Pacific Ocean voyage doing K.P. For the next two years, Irwin acted as control tower chief at an airfield in Burma. It was here that he kept Lord Louis Mountbatten, Commander-in-Chief, China-Burma-India theatre, up in the air. While directing air traffic one day, he landed several fighter planes in accordance with regulations, while Lord Mountbatten waited aloft. Irwin, of course, didn't know who it was he had up there. But he found out quickly once he let the plane land.

In 1946, Irwin left Burma and came home. He returned to New York University, graduated in 1948, and began his career with A. G. A. as a junior statistician. Ever since, he has been covering all the facts on the gas industry, and passing out information, in thoroughly digested form, to those who legitimately request it.

Irwin lives in the Bensonhurst section of Brooklyn with his wife, Betty, and his two sons, Mark, 7, and Burton, 3. He keeps busy around his home—and away from the kitchen since his K.P. days—with stamp collecting and sport watching. Irwin was a Dodger fan, but now, with Brooklyn lacking a team, he takes his older son up to the Yankee Stadium to root against the Yankees.

Irwin, naturally, keeps the box scores.

Good public relations may be defined as service with a smile—if it's the customer who's smiling

Measuring the customer's pulsebeat

By CHARLES R. DeHAVEN

Manager, Public Relations
Philadelphia Gas Works

The public be damned. . . . I don't take any stock in this silly nonsense about working for anybody's good but our own—*because we are not.* When we make a move we do it in *our* interest to do so."

These scornful words, hurled at a group of news reporters aboard a train in Chicago on October 8, 1882, ushered in a new business era.

The words were credited to William Henry Vanderbilt. Whether Vanderbilt used the language or not, it mattered little. The quote stuck with him because it accurately symbolized the attitude of the business giants of that day; men described as a "coarse, realistic, bargaining crowd."

Overnight, *all* business was challenged by public opinion to justify its right to existence. Every businessman became painfully aware of the sharp edge of public criticism.

Suddenly, the arithmetic of balance sheets—or those standards by which business institutions had been measured—was no longer adequate.

The man in the street started asking, "How are you getting it?"

"Never mind how good you used to be," an alert, angry populace accused businessmen and firms. . . . "What good are you now?"

"Exactly what are you doing to make the world a better place to live in that we should support you by our patronage? What value is there in you that you should be saved alive?"

The arrogant retort that, "This is my private business and I shall run it as I please," no longer sufficed. The right to take out of the American system of enterprise without backing up that claim with a clear explanation of just what was being put into the system, was the challenge flung in the face of the business world.

And, in our business day and generation, Vanderbilt's "public-be-damned" dictum is as devoid of sense or sentiment as it was in 1882.

Is there a person in this gathering who despises public opinion? A person who ignores public opinion does not care for the light of the sun—because he prefers the semi-gloom of a candle.

A great American, Abe Lincoln, said, "Public sentiment is everything. With public sentiment nothing fails; without it nothing succeeds."

Ours is an age of both public enlightenment and of public clamor. The demand for information of all kinds is insatiable, stimulated by the tremendous growth of public education and by new channels of communication. The public is literally assaulted by the written or spoken word. Newspapers, magazines, books, radio and television vie with one another. It is an intense and sometimes fierce competition. As one publicity man has said, "You have to shout these days to make yourself heard, and your shout is no guarantee that you will be understood."

The goal of all the clamor in print and over the air waves is the wooing of public opinion. That opinion won, can win a rate increase . . . open the door to new markets . . . or start a revolution. Devising the means of meeting the challenge hurled by society is a primary function of public relations.

The public relations challenge is no less formidable for the gas industry than for any other business in the nation. The gas industry's story is eminently worth telling, but day after day good industry stories—stories that first were worth doing and so became worth telling—are lost in a maze of business details or individual aversion to publicity.

Perhaps some stories are lost because no one thought of telling them; others do not capture the attention they deserve; still others are lost because the gas industry's personal, day-to-day contact with thousands of individuals makes the industry so susceptible to public sentiment.

In recent years there has been the birth of two mysterious words—"corporate image." Yet, the corporate image, or corporate personality as it is sometimes referred to, is nothing really new. It is, in its essentials, a picture which your organizations, and mine, have created in the minds of our various publics of which there are three basic groups:

(a) The people who work for us—our employees.

(b) The people we do business with—either presently or potentially—our customers.

(c) The members of the community in which we are located—our neighbors.

Whether you and I consciously do something about our "publics" or not,

(An address delivered at the A. G. A. Operating Section Distribution and Production Conference, Philadelphia, May 1961.)

they *will* form a definite picture of our organizations; and chances are this image is much more important than some of us are willing to admit.

"But, my job is reading gas meters," one employee may exclaim. "Is it my responsibility to care what the public thinks about my firm?"

Such a question may seem ridiculous, or naive, but unfortunately it is heard now and then. Yet, whose services is it the gas utility sells?

It is the combined work of accounting, sales, administration, customer service, production, distribution, engineering, and all the other corporate functions. And the people whose combined work is literally the *only* thing the gas company has to sell certainly should have an appreciation of, if not a direct interest in, the image the public has of their organization.

They ought to realize that the connection between the production department, through the distribution arteries to the customer's home, is not just a maze of pipes and services. It is a chain consisting of many individual human links.

The chief characteristics of the gas business—efficiency and dependability—are nothing more than an infinite number of routine tasks faithfully performed day after day.

However, routine does not excuse a lack of enthusiasm or "pride of job." And, in the gas industry "pride of job" partly at least depends on whether a man, for example, thinks his work is merely opening valves, or whether he understands he is doing his part to help maintain the integrity of his community's gas supply.

Perhaps this approach is too idealistic and you won't agree. But, I am sure you will agree that people—like yourselves—like to buy from companies they know and understand. They like to invest in them . . . they like to work for them . . . and they like to deal with them.

At this point I conclude that society is demanding that business engage in more "soul searching" and that the responsibility for meeting this demand is not one department's responsibility—such as public relations'—nor one individual's responsibility—but the continuous, collective responsibility and effort of all those engaged in serving the community with a dependable, efficient, quality supply of gas.

In this respect, I offer for your consideration the proposition that "customer opinion research" provides your management with a necessary, excellent tool for measuring "how good a job you are doing."

Customer opinion research—and in the instance of the Philadelphia Gas Works it might be called "public opinion research" if we properly relate 560,000 gas meters to a city of 2,000,000 citizens—represents one gas utility's efforts to seek truth; and the emphasis is on the word "truth."

We borrowed the dictionary definition of "utility"—modified its meaning and came up with the interpretation. . . . "The power of the Philadelphia Gas Works to satisfy Philadelphia's requirements for quality gas . . . efficient, well-operating gas appliances and competent, courteous service . . . at fair prices."

Perhaps this definition is idealistic in concept.

Nevertheless, the results of our opinion surveys have had a tangible effect on P.G.W.'s operation of a public-owned utility, in itself a position requiring exhaustive consideration of our customers and their opinion.

Good manners potent

One thing we have concluded from our surveys is, "Good manners, diplomacy, simple kindness, a desire to be helpful are public relations weapons as potent as all of the high-powered battery of promotion and advertising devised by the experts."

But there is another edge to the sword!

A brusque word from a telephone operator; a meter reader's foot in the flower bed; a temporary cutoff of gas supply without proper advance notice; a serviceman's muddy tracks on clean kitchen linoleum; a street drill echoing at 4 a.m. in the morning; a tedious, hard-to-understand customer communication; or a delayed customer complaint can quickly undo the good built up by years of man and woman hours of devoted service.

Public understanding and good will are won through planning and patience, courtesy and consideration—a mosaic of little things that count.

However, during the normal operation of a large utility—satisfying the daily requirements of thousands of customers—a theoretical state of "customer satisfaction" could be misinterpreted.

In other words, people may be buying our products and services because they have to have them—but they may be buying them grudgingly, or harboring some personal resentment or irritation against the institution which makes their gas service possible.

Customer anger or resentment probably has its roots in one of three areas: a poor product, inefficient gas equipment, or faulty service.

Furthermore, such resentment could apply to one customer . . . a hundred customers . . . or a vast segment of customers—or how do you know how many customers? In any event, a state of customer dissatisfaction, if allowed to go uncorrected, poses a serious threat to the commercial health and progressive vitality of any business—certainly every gas utility.

Customer dissatisfaction permits the existence of elusive shadows which brood and await the coming of sensational events.

There is the shadow of the public's fears. This fact is evidenced all around us, almost daily. The public magnifies and distorts its fears—whether its fears are justified or unfounded. The important fact is, as Shakespeare said, "In time we hate that which we often fear."

There is the shadow of public inconvenience. The public finds it difficult to conceive that a large, prosperous utility has problems. People lean toward the belief that a utility is an impersonal, cold, monopolistic monster with little feeling or regard for the individual.

Let a roast shrivel in the oven. Let a house grow cold on a chilly, gasless morning. Let traffic slow to a crawl, as it creeps around street work. Unless you provide a quick, rational explanation, watch the frustration, anger and irritation boil over.

Then there are those relatively minor shadows known popularly as "gossip, rumor and hysteria." Remember Orson Welles' now famous radio program, "The Invasion From Mars"—or else try imagining what the local housewife is saying right now about her gas company over the backyard fence.

So, mix public fear with public inconvenience, stir in a generous helping of gossip and rumor, top our hypothetical mess with customer dissatisfaction, and we have created the poorest kind of atmosphere in which to promote and sell gas and gas appliances. Every sales advertising dollar must swim upstream—every promotional effort faces the toughest odds.

Our management recognized the dan-

gerous potentials of customer dissatisfaction . . . and, therefore, sought a method to dig out and examine seeds of customer discontentment.

A natural way of doing this would have been to give each customer a voice in management's actions and decisions. In P.G.W.'s case this would have meant many thousands of customers—representing all walks of life—helping P.G.W. plot a course of sensible action designed to achieve individual satisfaction. Obviously this would enter the realm of fantasy.

Still, we wanted a customer's advocate seated at our management table.

So, P.G.W. decided to go to the customer. Thus the origination of P.G.W.'s Customer Opinion Survey program.

Our surveys do not measure the appeal of one gas range versus another . . . nor are they a measurement of gas sales against electric sales. They are surveys that ask. . . . "Did we treat you courteously?" . . . "Did you get what you paid for?" . . . "Did we respect your property?" . . . "How can we improve our services?"

This is really leading with your chin . . . and at times our chin has been solidly punched!

But, it has been an effort to safeguard the customers' rights through a constant self-analysis—a real, hard, long look in the mirror.

Opinions evaluated

Since the gas works' employees contact thousands of customers each day, it is the concern of our Opinion Survey Group to evaluate the customer's opinion of his daily contacts with P.G.W. To accomplish this, with the excellent cooperation of P.G.W.'s operating departments, we arrived at a fairly accurate estimate of annual contacts with our customers in specific areas. From these totals, it was calculated how many questionnaires had to be mailed in each area, to produce a statistically representative customer response.

Twelve surveys were created. Each acts as a "specific check" in specific areas of customer contact. They are as follows:

(1) High bill inquiries
(2) Street sales contacts
(3) Appliance sales on gas works' premises
(4) Reading gas meters
(5) Interviewing job applicants
(6) Telephone contacts
(7) Work in the streets
(8) All types of customer service work
(9) Visits to district offices (two types of questionnaires)
(10) Delivery of gas appliances (by two departments)

Since inception, the Survey Group has mailed 82,314 questionnaires. Of these, customers returned 31,905 answers by mail for an exceedingly fine 39 per cent mail response. Another 10,077 customers of the nonrespondent group, were polled via personal interviews, but using the same questionnaire. Combining the two methods brings the total number of customers actually "talked to" to 41,982, or slightly better than a 51 per cent response of the total questionnaires mailed. On this tremendously high response, the validity of P.G.W.'s findings appears to be well established.

As a result of its surveys, P.G.W. knows that nine out of every 10 customers are very favorably impressed with the gas works' services. The tenth customer has some comment . . . though not always in what might be considered a derogatory manner. This record is especially noteworthy for a "public utility" or "public service organization."

Furthermore, although customer opinion of all P.G.W. services stands at a 90.8 per cent level of satisfaction, most remarkable is the 99.3 per cent satisfaction expressed concerning the courtesy of our employees and the 99.9 per cent satisfaction with the appearance of our employees.

Since May, 1957, over all there has been an increase of 2.8 per cent in the total level of customer satisfaction . . . from 88.0 per cent to 90.8 per cent. However, more important are the increases in the customer levels of satisfaction as evidenced in specific areas of service.

Consider our C.S.D. Appliance Delivery function as an example. The base survey established a 55.8 per cent level of satisfaction—only slightly more than 5½ customers out of 10 were satisfied with the manner in which appliances were delivered to their homes. Following institution of various corrective measures, including a tighter inspection of appliances prior to delivery, the annual level of satisfaction for 1960 closed at 74.0 per cent or 18.2 per cent higher than the base level. The survey's level of satisfaction hit a peak in October, 1959, when customer opinion reached 92.3 per cent.

For high bill inquiries . . . an area generally regarded as a particularly sensitive aspect of customer relations . . . a shift in opinion has been noted. Originally, the high bill activity showed an 80.2 per cent level of satisfaction. After one year of sampling, a 6.3 per cent increase was indicated. Then came what appeared to be a Philadelphia recession in 1958-1959, followed by a prolonged steel strike. Customer "acceptance" dipped, perhaps with incomes, and as a consequence this level now stands at 77.6 per cent. However, these are preliminary assumptions and public relations is in the process of correlating various data as well as examining the high bill service itself to determine the actual cause which may have created the decrease.

Telephone service has been increased by 3.2 per cent and street sales contacts indicate a whopping 25.5 per cent improvement over the base survey period.

There have been other decreases. In district office teller contacts a 5.3 per cent decrease has been experienced over a 26-month period, from 95.4 to 90.1 per cent. Here, however, an interesting development was encountered.

Customer sometimes overruled

One complaint, which repeatedly appeared on questionnaires, dealt with the location of tellers' cages. Women especially commented they had to walk too far to pay their bills. Cages are, however, strategically located so as to parade District Office visitors past attractive appliance display areas before transacting their business. Such negativism must, therefore, be weighed against the "sales potential" factor. Consequently, when the questionnaire was revised, the question dealing with location of cages was deleted and the level has since increased to 98.4 per cent.

P.G.W.'s street work activity has shown relatively slight increase—from 81.6 per cent to 82.7 per cent over a period of 37 months. The 1.1 per cent increase in level of customer satisfaction is very gratifying, however. The gas works is engaged constantly in extensive development, replacement, and reconstruction programs entailing considerable street work activity. Yet, our survey shows that less than two people out of 10 give much critical thought to

(Continued on page 29)

REINHOLD H. JOHNSON, *CHAIRMAN* · ARTHUR SKELTON, *1st VICE-CHAIRMAN* · CONRAD F. MILLS, *2nd VICE-CHAIRMAN*

Billing by electronic calculator

IBM 609 Electronic Calculator is key element in LILCO's "ideal punched-card system"

The 609 is designed for relatively simple conversion to larger data process system

By JAMES F. DALY

Associate Controller
Long Island Lighting Company

The "ideal" in data processing may vary with different companies, but it is a real goal. It is not enough to get out accurate bills on schedule—to produce the many statistics and reports and to hold clerical costs to a minimum. The ideal system does all these things, and goes one step further—in our particular case it is essential that the system be so designed as to make conversion to more advanced equipment relatively simple.

At Long Island Lighting Company we have been adding customers at the rate of approximately 32,000 per year; expansion has become a way of life. If our data processing system did not grow with us we would find ourselves on the familiar treadmill, running as fast as we can just to stand still.

Ours may very well be the fastest growing gas and electric utility in the country, for we serve two of the fastest growing counties, Nassau and Suffolk. We also serve a part of Queens County which is within New York City's limits. Our territory therefore makes up a healthy segment of New York City's huge suburban area. Now in its second half century of service Long Island Lighting Company employs 5,300 skilled people engaged in supplying and servicing 593,000 electric and 335,000 gas customers.

Our service area covers 1,230 square miles containing over 2,100,000 residents, a large proportion of which have been added during the past decade. Of a total generating capacity of 1,256,500 kilowatts, over 1,000,000 were added during that period. Our system gas requirements in 1960 were 236% above the level in 1950. At the same time, the company has spent an average of $45,000,000 a year for new gas, electric and related facilities. With a sustained heavy growth rate, continuous advance planning is essential to meet our responsibilities efficiently and economically.

It is not just that continued growth on our part requires constant study and reevaluation; constant improvements in machinery and methods also make re-

IBM 409 Accounting Machine punches stub and prints bill simultaneously

Partial view of the data processing room at LILCO's facility in Brentwood, N. Y.

IBM 108 Card-Proving Machine combines with 609 for faster punched card work

evaluation mandatory.

The accounting, billing and general paperwork problems which are always present in such an operation led us, some time ago, to punched card methods. General accounting and billing were kept—and still are—separate.

By the end of 1959 certain facts became apparent. Our billing system needed a complete overhauling; we would have to install a complete new system. We had made a thorough study in our general accounting area of a 609 IBM calculator which was on order to up-date the 604 presently in use. IBM equipment had been in operation in general accounting for the past 25 years.

In August 1960, we requested IBM Corporation to ship the 609 calculator orginially scheduled for delivery to general accounting to our Brentwood Operations Center, together with additional equipment to complement the calculator.

We then created a coordinating committee which included every department with an interest in the area of customer billing, such as our own data processing people, the customer relations department, customer accounting department, systems and procedures, etc. We appointed the manager of our data processing department and the manager of the customer accounting department as co-chairmen of the committee. At the same time the services of Henry Hendricks, a data processing specialist with Price, Waterhouse & Company, were contracted for. At the very beginning we set forth the objectives:

1. A time schedule was established for starting the change-over to a new system.
2. We aimed for the most modern punch card system obtainable.
3. The system and procedures must help us to obtain the best possible customer relations in the area of billing.
4. To design this modern customer oriented system so that when the time came for us to move into larger data processing hardware, conversion would pose no serious problems.

At the end of four months of inten-

(Continued on page 30)

M. J. Patrick, mayor of Windsor, was on hand to greet delegates, along with L. J. Fretwell (l.) and R. M. Perkins (r.)

Commercial Gas Day morning speakers were W. G. Wepfer, Mrs. E. M. Alcorn, L. W. Reyo

A. G. A. Industrial and Commercial sales conference at Windsor, Ontario draws largest number ever to attend the annual meeting

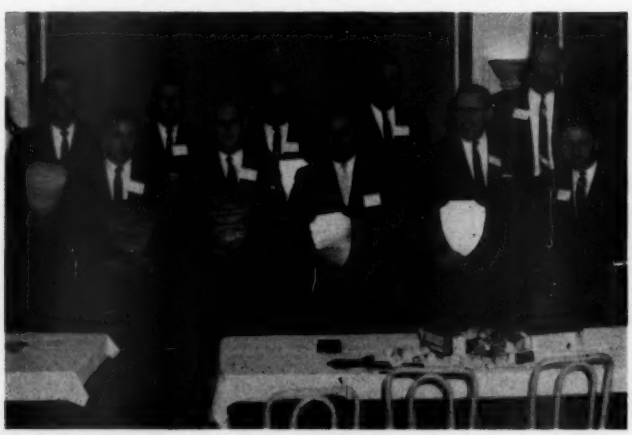
Commerce, industry are sales targets

Nearly 400 delegates and their wives attended the 1961 A. G. A. Sales Conference on Industrial and Commercial Gas during the week of April 10 in The Prince Edward Hotel, Windsor, Ontario, Canada. This was the largest number ever attending a spring conference.

The subjects presented and discussed during Commercial Gas Day, the General Session, and on Industrial Gas Day fulfilled aims and purposes of the Task Force which planned the meeting under the chairmanship of R. Lloyd French, Union Gas Co. of Canada, Ltd., Chatham, Ontario.

Representatives of gas companies and gas equipment manufacturers came from Ontario, Quebec, and the Western provinces of Canada, and from every state in the United States east of the Mississippi.

A group of gas company representatives who accepted PEP contest awards on behalf of their companies



The general session program included, left to right, F. A. Kaiser, C. C. Eeles, G. G. Fisch, and W. D. Relyea

Thursday afternoon speakers were, left to right: W. O. Wheeler, C. C. Hanthorn, and N. R. Millard

R. H. Murray, G. Douglas, L. J. Fretwell, F. R. Palin, W. S. Sims, W. D. Relyea, left to right, chat informally

On the opening day, Russell M. Perkins, manager of the Windsor district, Union Gas Co., presented Mayor Michael J. Patrick, who welcomed the delegates on behalf of the City of Windsor.

Morning and afternoon sessions were presided over by L. J. Fretwell, Oklahoma Natural Gas Co., and W. D. Relyea, Public Service Electric & Gas Co., chairman and vice chairman respectively of the Section.

Starting Commercial Day, Louis W. Roye, A. O. Smith Corp., Kankakee, Illinois, spoke on hydronic space heating techniques in which he explained how new units are producing superheated water at low operating costs.

William G. Wepfer, general sales manager, Arkla Air Conditioning Corp., discussed air conditioning market capability, emphasizing that new equipment and higher demand is bringing cost of installation to a competitive level, while operating costs are also lower.

A film on commercial incineration provided a welcome interlude and, under the title of "Let's Be a Good Neighbor," showed the community benefits to be derived from commercial incinerators.

Mrs. Elsie M. Alcorn, home service director, Milwaukee Gas Light Co., concluded the morning session with "The Facts of Life," in which she stated that all facets of a utility should work together to attain the maximum in sales.

Mrs. Alcorn said, "There are ways in which Home Service and the Commercial Sales Department can work closely together and complement each other's efforts to achieve gas appliance sales."

She also told about the school program of her company which, in a sense, fits into the commercial program of seeing that the schools have no more than two-year-old equipment for instruction purposes. She concluded with, "In our cooperative efforts, it is most important that we become familiar with each other's department operations, attitudes and problems, so that we may tell our customers the same story, and so that we can be considerate to each other and work in harmony."

Opening the afternoon session with a talk, "Straight from the Shoulder," William O. Wheeler, president, Wheeler's Foods, Inc., slanted his talk toward research and stated that very little was done until the impact of the Fort Lee, Virginia, tests were felt by fryer manufacturers. Almost at once, one manufacturer brought out a new high-input fryer, which was most successful and

Industrial Gas Day morning speakers were, left to right: E. F. Kurzinski, T. J. Davidson, W. Crowley, R. B. Smith

L. F. Crouse, C. W. Morck, and R. C. LeMay, left to right, were closing speakers at the conference

contributed to large volume savings in many restaurants.

Mr. Wheeler complimented the National Restaurant Association, the A. G. A. Laboratories and others, who had contributed much through their research activities. He said, "An added satisfaction is the fact that the gas industry—as an industry—has established a powerful research operation, which will, from now on, continuously work on improvements in appliances, which will provide increased efficiency and reduce labor and fuel costs."

Somewhat on the lighter side, Charles C. Hanthorn, commercial-institutional sales manager, Philadelphia Gas Works division, U.G.I., gave several case histories on "Commercial Sales Gimmicks" that had proved successful in his area.

A concluding paper was presented by Norman R. Millard, manager-utilities, Philco Corp., Philadelphia, on a fast growing segment of the industry, "The Coin-Operated Laundry." He surprised his listeners by saying, "The present growth in coin-operated laundry centers represents a huge annual load gain for gas utilities. Indeed, if everyone of the approximately 2,500 opened each year used gas for water heating as well as drying, the gas utility industry's load gain would be in excess of 10 billion MCF per year." He went on to describe this type of laundry and its operation and concluded with, "The reason why unattended coin-operated laundry centers can save customers 40 per cent to 60 per cent on an average 14 pound laundry load is associated with the same economics which have made our industrial system so powerful . . . mass production at economical operating rates."

F. R. Palin of Chatham, Ontario, general manager of Union Gas Co., host for the conference, spoke to the delegates at the opening of the General Session and extended a cordial welcome to those who came from other parts of Canada and the United States.

During the morning session, Vincent J. Barry, vice president, American Industrial Leasing Co., spoke on the pros and cons of lease financing, in which he pointed out that more and more industrial production equipment is now on a lease basis to reduce capital investment, retain more working capital in the business, and enhance increased net earnings.

The balance of the morning was devoted to presentation of the GAMA, PEP Contest Awards and certificates of life membership in the Hall of Flame. Those companies receiving PEP awards were: Alabama Gas Corp.; The Bridgeport Gas Co.; Harrisburg Gas Division —U.G.I.; Lancaster County Gas Division—U.G.I.; Minneapolis Gas Co.; The Ohio Fuel Gas Co.; Pennsylvania Gas & Water Co.; Piedmont Natural Gas Co.; Southern Counties Gas Co. of California; and Virginia Gas Distribution Corp.

New members of the Hall of Flame were: G. B. Banowsky, United Gas Corp.; Clinton B. Cole, Rochester, (N. Y.) Gas & Electric Corp. (retired); Robert H. Combs, Oklahoma Natural Gas Co.; Charles T. Dierker, Southern California Gas Co.; Rex T. Ellington, The Institute of Gas Technology; H. E. Frome, United Fuel Gas Co.; Richard Goder, Joseph Goder Incinerators; William E. Green, Michigan Consolidated Gas Co.; Norbert K. Hall, The Ready-Power Co.; Fred M. Johnson, Surface Combustion Div., Midland Ross Corp.; Gerald T. McDonald, The East Ohio Gas Co.; L. Frank Moore, The Frymaster Corp.; H. M. O'Haver, Southern California Gas Co.; Bernard E. Twigg, Citizens Gas & Coke Utility; Don Williams, A. O. Smith Corp.; Ralbern H. Murray, A. G. A.

Sales talks filled the afternoon session. Fred A. Kaiser, vice president and general sales manager, Michigan Consolidated Gas Co., and Section past chairman, told his audience, "Let's Get Back to Selling." He stated that it had been a long time since gas representatives were just order takers, and that now, the only way to move merchandise is to really get out and sell. He also gave several good pointers for the delegates to take back with them and pass along to their associates.

Charles C. Eeles, director, business promotion, Columbia Gas Systems Service Corp., gave a slide presentation on "Let's Sell the Total Gas Package." In this, gas representatives of different companies, selling in similar situations, took opposite approaches. Sales lessons were pointed up as the "good guy" sold every possible gas application in the proposed shopping center, while the "bad guy" lost everything to the competition.

"Where to . . . American Industry?" by Gerald G. Fisch, executive vice president and managing director, Payne-Ross, Ltd., Montreal, concluded the session with some very interesting observations on foreign competition and its effects on the economics of both the United States and Canada.

The middle day of the conference was a gala one for some 40 ladies attending. Union Gas Co. was host for a luncheon at a nearby Windsor resort restaurant. The luncheon followed a short tour over the Ambassador Bridge into Detroit, then back to Windsor through the tunnel. Following the luncheon, a trip was arranged through the plant of Hiram-Walker & Sons, Ltd. to top off the festivities.

In the evening, the traditional Gas Appliance Manufacturers' "Friendship Hour" was held at the famous Elmwood Casino and was followed by the annual dinner, during which time the regular scheduled entertainment program of the Casino was featured.

Industrial Gas Day was devoted to pertinent subjects on this phase of the gas industry.

Ted J. Davison, development engineer, engine division, Caterpillar Tractor Co., Peoria, Ill., spoke on "The Natural Gas Engine Market." Caterpillar has been developing gas-fueled package units for the generation of electricity. Mr. Davison explained the types on the market and the extensive market open to them. By the use of many slides, he covered the vast field of applications for engines both in power generation and as prime movers for air conditioning compressors.

E. F. Kurzinski, manager, applied research and development division, Air Products Inc., spoke on "Oxy-Gas Applications" and explained how this can aid in the sale of large blocks of gas, where higher temperatures find ready acceptance, such as in the open hearth.

A discussion on special gas rates as a marketing aid was presented by William Crowley, vice president, Northern Illinois Gas Co. Robert B. Smith, assistant director of research, A. G. A., presented an enlightening illustrated talk on the use of gas turbines.

At the afternoon session, Lowell F. Crouse, vice president, Maxon Premix Burner Co., Muncie, Ind., addressed the group on direct gas-fired makeup air heating.

Concluding the conference, Robert C. LeMay, manager, contract sales, and C. W. Morck, research group leader, both from Selas Corp. of America, explained how the gas industry has developed satisfactory equipment, which will operate in the 3,000-4,000 degree range.

It is a utility's efforts on the local level that enable it to beat competition and increase sales

Make tomorrow's sales today

By LESLIE A. BRANDT

President
The Peoples Gas Light and Coke Company

You no doubt are aware that there are some new currents in the air in our industry and that they are created by the growing conviction of general management that in the years ahead more and more of the measure of success of our industry and its member companies will be taken in the market place—in the sale of gas to the ultimate consumer.

This is not a tardy awakening on the part of general management to the basic facts of our business life. Top management does keep close abreast of all phases of business, but there is a human tendency for it to devote much of its attention to that area where the biggest problems are in any given period.

In the early years after World War II, the hottest problem was the compelling need to expand—and rapidly—to meet pent-up consumer demands. This involved the knotty problems of tying down more and more new supply and directly or through suppliers getting long-distance pipelines built, and so on. This situation naturally brought on pressing problems in the fields of regulation, financing, engineering and construction.

Expansion of this kind along with large volume storage will and must continue for the gas industry to meet its long term growth, but, generally speaking, the do-it-yesterday situation has abated a bit.

So, too, of course, has the pent-up post-war demand, as you well know. What does this add up to? It adds up to an understanding by company leaders of a growing necessity for us to step up our marketing efforts.

Not only have the added supplies been obtained in large measure, and the attendant problems substantially solved, but the easy order taking vanished long ago, and pressure from competition is increasing greatly.

Hence, it no longer is a matter of making yesterday's or even last year's sales today. To keep ahead, it now is a matter of making *tomorrow's* sales today before competition makes them for us.

Now then, how to meet this challenge?

The place where direct and truly effective action can take place to meet any marketing problem has to be at a local level. It is there that the actual sales are made.

You will bear with me, then, I hope, if I use the Peoples Gas operation as a "case history" on which to base the balance of my remarks.

Our company's approach to market problems, particularly acute ones such as making tomorrow's sales today, has a somewhat philosophical basis. But philosophy soon becomes policy and policy quickly becomes action—action based on carefully thought out planning.

To us, a complete or total marketing program must have all the segments necessary in their proper proportion and sequence if it is to be most successful. That is why we call it a "10-10" program. The numbers simply mean that if ten segments are needed in the program, then all ten should be used. You may call it a "5-5" program if you want to. Whatever combination is used these numbers merely indicate the segments necessary for a complete marketing program to solve your particular problems. The important thing is to omit nothing that is required and to have every segment in its proper size and relationship to all the other segments. By way of broadest illustration, it is entirely possible to have an excellent direct selling organization, but what good is that if you don't have a salable product?

The first step as we see it in developing a good marketing program is a thorough market survey. This survey is the basis for further planning. However, such a survey should be looked on as the means to an end and not the end in itself. There are, of course, many definitions and opinions of what a market survey is. To us, it is a careful study of a given area, be it large or small, to determine how much of a product or service can be sold in that area. Such questions as the following should be answered by a market survey:

a. Is there a need for the product or service?

b. Is there customer awareness of that need?

c. Would there be acceptance of the product service?

d. What degree of market saturation already exists?

e. How many potential customers are in the area?

f. What is your competition and can you meet it in price and also in other respects?

It is doubly important that a market survey should not be accepted without question as the last word. The questions of "Who says so?" and "What is the

(Excerpted from an address delivered at the A. G. A. Mid-West Regional Sales Conference, held at the Edgewater Beach Hotel, Chicago, May 15-16, 1961. A full report on the conference will be carried in the next issue of the MONTHLY.)

basis of the survey?" should be asked and carefully answered. Sometimes, a qualitative survey or a quantitive survey is made. Then, again, a combination of the two is used for a balanced view. Unfortunately, some organizations set up a market survey process and apply it indiscriminately to a study for any product or service. We believe that is wrong and that the particular marketing problem should determine the approach selected for the market survey.

With all that, we must still say, "is that so?" Blind faith in any marketing program based solely on a market survey, whether depth, qualitative, quantitative, or a combination, is not wise. There is no guarantee that the program will be successful and the results adequate.

Product research

Another equally important segment in our "10-10" program is product research. Any potential market is questionable if the products available do not meet the needs of that market. The product, or products, must be competitive in the market being considered. This doesn't mean price necessarily, although other things being equal, price of the product may be controlling. Customer preference, for example, may be an important item in making the product competitive.

We must also be concerned about local problems such as restrictions imposed by building codes and city ordinances.

An excellent example of this point is the marketing of outdoor swimming pools in Chicago. At the start of their popularity there were few installation restrictions. Subsequently, however, the City of Chicago began to require the installation of filters and pumping systems for each swimming pool. These added items had a definite and unfortunate effect on the marketing programs for swimming pools because of the increased product cost.

An estimate of what we call the total potential market is based upon the interaction of market research and product research. This is a changing situation and one that must be constantly reappraised in the light of conditions as they affect the market and the product from time to time.

From our estimate of the market based on market and product research, we can then look carefully at the other segments of our marketing program. Advertising, dealer contacts, architect contacts, sales promotion activities, and direct sales are among the various other phases to be considered. If we succeed in putting them all together in their proper proportion and sequence, we should arrive at a complete marketing program.

Our own direct merchandising program includes the following items:

1. An umbrella of advertising to help create proper customer attitude;
2. Pinpointed forms of advertising directed to limited audiences;
3. Promotional efforts to facilitate the sale of merchandise by dealers and by the company's direct selling organization;
4. The actual sales organization to get the signed order from the customer.

Now let me give you the structure of our direct sales organization. This is the crux of the difference between our approach and that of many other gas companies. In Chicago we deal with a million customers and we have ninety full-time field salesmen who are working day in and day out, as well as many nights, contacting customers to sell gas appliances. They average in the neighborhood of 700 calls per day, in all cases talking of and about gas appliances. Ten supervisory and management employees handle these men from two locations in the city. In addition, we have branch offices which display merchandise and are available for use by the salesmen to make it possible for a customer to view directly a particular gas appliance.

Incentive plan

An incentive plan of compensation is basic to the job of this sales force. Base pay is kept low, which means that their final take-home pay reflects primarily the fruits of their own efforts.

Thus, our sales organization is hard-hitting and made up of men who enjoy a highly competitive situation. The inadequate quickly move out—the successful can earn a good living. It has been our experience that some of the best salesmen have earned as much as $16,000 a year.

I have given you the basis for our approach and the structure that we use. All of this is in direct contrast to the alternative technique—that is, the non-merchandising marketing program.

Now what results are being achieved in Chicago? Basically, our direct sales force deals with gas ranges, clothes dryers, water heaters, refrigerators, and incinerators. They do not sell space heating appliances.

As a long-time advocate and practitioner of direct merchandising with a strong parallel dealer program in its residential market, Peoples Gas is aware that in the gas utility field there have for many years existed two schools of thought as between merchandising and non-merchandising. Recently, due perhaps to some losses in the domestic market, there has been some evidence of a growing feeling in our industry's general management that a gas utility, along with dealers, should do whatever is necessary, including direct selling if you please, to see that enough high quality appliances are sold each year to protect and extend the domestic load.

Taking the three appliances we sell directly, which are the most important or fundamental—ranges, automatic water heaters, and clothes dryers—I can give you the following report:

From 1956 through 1960, 401,708 gas ranges were sold for installation in Chicago. Dealers sold 357,125; we sold 44,583 for 11.10% of the market.

In the same five years, 116,793 automatic water heaters were sold; 103,617 by dealers, 13,176 by ourselves for 11.28% of the market.

In the same period, 152,430 gas clothes dryers were sold, 131,143 by dealers, 21,287 by us, for 13.97% of the market.

I can also report that more than 90% of the people in Chicago are cooking with gas despite electric range promotions which date back to the late thirties.

Electric water heating sales in Chicago remain negligible. In the domestic water heating market, gas over electricity is in the high nineties in percentage.

Sales of gas clothes dryers over electric for installation in the city are in a ratio of 9 to 1 in favor of gas.

It is because Peoples Gas has been able to achieve the results I have just quoted, in direct sales of its own, with dealers in each case getting a volume market *to which our own efforts have contributed,* that we stand strong on our policy of direct merchandising and recommend it for your consideration.

It is the best way we know of meeting the challenge of making tomorrow's sales today.

Pulse beat

(Continued from page 21)

P.G.W.'s miles of gas mains and services, and related street work activity.

The favorable attitude toward P.G.W.'s street work activity is directly attributed to the "do it yourself" public relations activities of our distribution department. Distribution does much to minimize negative reaction to street work. Supervisors make personal calls to each household in the area immediately surrounding the location of a street job. The householder is given full assurance that any disturbance to lawns, shrubs, pavements and driveways will be minimized, and that there will be complete restoration to original condition in the event damage is incurred. The householders are invited to contact P.G.W. if restoration does not meet with their complete satisfaction.

Another phase of distribution's PR activity is the continuous attempt to reduce traffic interference and minimize noises. When permissible work is scheduled during slack traffic periods. Temporary crossings are provided to allow pedestrian traffic to move normally. Compressors are moved each day so one resident will not be subjected to continuous noise irritation. Care is taken in residential areas not to begin work before the average household is awake.

Since the success of P.G.W.'s customer opinion survey program is to a great degree dependent upon the acceptance of the survey's findings as being truthfully representative of customer opinion—so that an enthusiastic atmosphere is established in which to thoroughly consider corrective action—public relations has been engaged in a program of refining its survey techniques. Beginning January, 1961, Public Relations switched to a quarterly reporting schedule, although it still conducts its sampling on a monthly basis.

The surveys provide an excellent means for conducting studies which can correlate P.G.W.'s policies and procedures in certain areas of service with the customer's opinion of the same service.

Many may be asking themselves, "Well, what have the surveys revealed in the way of customer dissatisfaction?"

We noted many specific criticisms, too numerous to relate here in their entirety. Among the more repeated complaints:

(1) We were not giving customers enough time to answer doorbells.

(2) We need to be more watchful of appliance condition at time of delivery.

(3) More promptness was needed in delivery of appliances.

(4) More promptness was needed in removal of old appliances following installation of new ones.

(5) Customers are much more critical, naturally, of "paid-for services."

(6) We need to give more and clearer instructions, or literature about the operation of appliances, reading gas meters, company operation, and so forth.

(7) Customers need especially careful consideration prior to gas shut-offs.

(8) Customers are very conscious of work on their property and the manner in which it is restored to original condition.

(9) Customers are very critical of the appearance of P.G.W. offices, premises, vehicles, and employees.

(10) Customers resent salesmen who gain entrance under false pretenses.

Action taken

On the other side of the ledger, what are a few of the measures resulting because of the customer surveys—actuated by P.G.W. to improve its customer relations? Again, the list is long. But some highlights are:

(1) A tighter inspection of appliances prior to delivery has been achieved.

(2) A series of cold weather customer bill inserts was started.

(3) Five or six pamphlets—such as, "A question and answer booklet for new P.G.W. customers"—are in the process of production.

(4) A promotional analysis of P.G.W.'s street work activity has been completed and is under review.

(5) More information is being obtained on job applicants.

(6) Rigid supervision of street sales personnel making customer calls has been effected.

(7) A "take a check" program has been instituted for visitors to district offices and an expansive renovation program of the offices is underway.

(8) Street work activity is strictly limited to certain hours, unless an emergency is involved.

(9) Periodic seminars on telephone courtesy are being held using survey information as one basis for discussion.

(10) "We'll be back" cards were instituted governing the delivery and condition of appliances at the time of their installation.

Not only have the surveys determined a level of customer satisfaction, but there also has been reflected an attitude that P.G.W. is a familiar, well-accepted member of the Philadelphia community.

However, it is important to realize that customers may change their attitudes suddenly—thus a reason for a continuous survey program. Ofttimes a shift in customer opinion may be the result of a single experience with the company.

Measuring customer opinion appears deceptively easy, when in reality it is most difficult. Accurate interpretation of the data collected demands skill in understanding various segments of population—their biases, prejudices, pre-determined notions, and so forth.

In an effort to keep abreast of operational changes which may affect the survey program, close contact is maintained with the operating departments. Frequent conferences with departmental personnel involve interpretation of survey results and related analysis of the department's operation.

By developing a broad understanding of P.G.W. through many dealings with other departments, and by remaining constantly attuned to customer attitude, public relations develops a complete picture, offering management a highly specialized service of continuing importance in examining customer relations. We are, so to speak, the family doctor . . . on constant call . . . on constant duty . . . constantly watchful for any sudden rise in customer temperament . . . and our diagnosis usually calls for "preventive medicine."

However progress in public relations activities is not always measurable by accepted terms. An appraisal of results is always open to conjecture which is sometimes more optimistic than is justified.

To create public acceptance and understanding is a continuous task . . . involving not only the education of the public by accepted means and media . . . such as advertising, publicity, and pamphlets . . . but also by a continuing analysis of all the actions of those who are engaged in serving the public.

In this respect, P.G.W.'s customer opinion surveys are not mere adventures tampering with human relations. They are one step, in a series of many steps, calculated to further the indisputable fact that P.G.W.'s performance and practices are at all times dedicated to the welfare of its customers.

Accounting

(Continued from page 23)

sive work, the committee recommended the system which we have already installed in our Brentwood Operations Center. At this location we will bill and have already started (beginning January 6, 1961) all of our Suffolk County customers. We expect that this part of the job will be completed in May of 1961.

About June of 1961 we will install similar equipment at our Hewlett Operations Center located in Nassau County, from which point we will bill our Nassau and Queens customers.

The IBM 609 Electronic Calculator meets the requirements for our punch card system—we did not design the system around this machine. Our company was the first to put this advanced, solid-state machine to use on Long Island and the first in the Metropolitan New York area as well.

Billing procedure

While the billing procedure is not startlingly different from many others in the utilities field, a quick rundown of the major steps involved will illuminate the advances which we have achieved. We begin with an advance card, as we call it, containing customer identification, the previous meter reading and applicable rate codes.

When the billing cycle begins, the current meter reading and consumption are key-punched into the card from the Meter Reading Book.

Then the card is put through another new unit, called the 108 card proving machine, which with the 609 forms a particularly effective team. Operating at 1,000 cards per minute the 108 performs an editing job while also setting up the accounting controls for future processing.

In one pass through the 609, working at a rate of 200 cards per minute, the consumption figure is checked, the actual number of days covered by the meter reading is computed, and cards with consumption errors are automatically selected out for review. The computation of actual days covered is important.

On a monthly bill elapsed days from previous to current reading within the range 28 to 35 instructs the machine to compute the bill as a 30-day bill. The range is 58 to 65 on bi-monthly bills and, of course, any variation requires a pro-rated bill. In one more pass the 609 extends each bill and automatically checks its computations.

After the name and address cards and arrears cards (if any) have been collated with the advanced billing cards they are passed through the 409 to prepare the punch card bill. This machine prints the complete billing detail, the name and address, and punches the bill stub with the amount, customer's account number and other identifying information.

Complete billing data is forwarded immediately to the customer relations district offices. This includes information on arrears, broken down into those which are 30 days behind and 60 days and over.

As we change over each district this information gets to the district office earlier and is in a far more comprehensive form than was previously possible meaning that customer queries and complaints can be handled more effectively.

Because of the punched card stub, cash posting has become a mechanical procedure. If the customer makes a partial payment, the amount is marksensed on the back of the stub by a clerk in the district office where payments are received. All stubs are run through the 514 reproducing punch, which automatically prepares full or partial payment cards. The cash register is run off on the 407 accounting machine and forwarded to each district office, again far more quickly than was possible in the past.

The new system makes possible a number of improvements in punched card methods which are of interest primarily to the data processing expert, but which add up to significant efficiencies.

Bills for gas budget customers are spread over a twelve month period, with the last two months used to make any adjustments between budgeted and actual consumption. These bills, all computed automatically, show the customer his exact account status at each billing.

At the same time the punched stub has permitted a degree of automation which has made itself felt in terms of speed, efficiency and economy. Whereas in the past payments on every one of the hundreds of thousands of bills sent out required key punching of cash cards, the punched stub has reduced this to a mechanical step. Consequently, experienced operators have been freed for other work.

In terms of hardware, the 609 is no bigger than a machine such as the reproducing punch, yet incorporates all the functions performed by conventional vacuum-tube processors requiring two or more units.

In one compact cabinet it combines the functions of input, output, calculation and storage—384 positions of magnetic core storage and 144 programming steps. The sum total here is greater capacity, speed and versatility in conjunction with reduced space and power requirements, and the elimination of special air conditioning.

We believe that Long Island Lighting Company will have, when we complete the change-over of our entire system, and this is scheduled for completion in February 1962, the most sophisticated punched-card data processing system obtainable.

With the overall customer accounting job completely mechanized—with a sharp reduction in the period between meter reading and billing—with cash and ledger posting up-dated, reminder and final notices prepared automatically —with better mechanized controls— all tied into improved customer relations —we have gone as far as we can with punched-card methods.

Future methods

The next step will probably be to a magnetic tape oriented system. We may decide to centralize the entire operation, or to install individual systems at each of the two locations. Studies are under way even now so that decisions can be made intelligently when the time comes.

In any event, the move to a larger system will not disrupt our data processing organization, will not cost us an inordinate amount of money and will not cause customer relations to suffer. This is because we are already operating within the same procedural framework that tape methods would employ, making conversion relatively simple.

This is the ideal system we set out to achieve, taking care of the present even as it looks to the future. We have proved, to our own satisfaction that it can be done. Perhaps most important, we can view the continually growing work load which is part of the utilities scene with equanimity and even with anticipation rather than with the sense of foreboding which comes with inadequate preparation.

Operating conference

(Continued from page 6)

Mr. Wheeler pointed out the following advantages to the gas industry in joining the helium conservation program:

- It offers an opportunity for service to the nation.
- It provides an opportunity for new sales revenues from a previously unused natural gas component.
- Extraction of inert fractions including helium will make possible pipeline transmission of increased quantities of the burnable hydrocarbon fractions.
- New gas industry jobs and investment opportunities will be provided.
- The industry will gain valuable new experience.

Helium is found chiefly in natural gases produced in Texas, Oklahoma, Kansas and New Mexico. Therefore, the conservation program has a regional character.

Other speakers at the session were K. M. Morse, U. S. Steel Corporation; and O. A. Gray, United Engineers and Constructors, Inc. Mr. Morse's topic was "Are Safety Solvents Safe?" Mr. Gray delivered a "Builders' Report."

The prospect of a gas fuel cell-operated automobile was raised during a Monday afternoon Joint A. G. A.-EEI Automotive and Mobile Equipment Session.

C. L. Bouchard, Ford Motor Company, discussing "The Automotive Power Plant—Past, Present and Future," described the advantages and disadvantages of various types of automobile engines, including the steam engine, the gas turbine, and the internal combustion engine. Gas fuel cells may surpass all of these as the car power plant of the future, he said—but not enough is yet known to be sure of this. Therefore, the gas fuel cell car must still be regarded as a "dark horse."

Specialized sessions of the conference, and their chairmen, were as follows:

Joint A. G. A.-EEI Automotive and Mobile Equipment; F. E. Raglin, K. G. Scantling, and H. W. Keller presiding.

Customer Service; C. F. Miller and J. H. Betty presiding.

Distribution Design and Development; Robert Marples and P. B. Thompson presiding.

Metering; R. L. Jones and A. R. Milliron presiding.

Construction and Maintenance; H. G. Kaess and C. R. Newlin presiding.

Corrosion; J. W. McAmis and P. C. Hoy presiding.

Chemical and Engineering; A. L. Wallace, R. W. Gilkinson, and D. F. Cundari presiding.

Production Methods; B. C. Altman presiding.

Production; Robert Kyle presiding.

Production Planning; B. M. Keys presiding.

Thermoelectricity—now

(Continued from page 9)

device's low efficiency. That is, efforts have been directed toward improving efficiency rather than toward developing applications of present technology.

"But now we don't need to improve its efficiency," Dr. Milliken stated. Today's generators are efficient enough for at least one use. There is plenty of heat inside a gas furnace to operate its blower and controls thermoelectrically, Dr. Milliken declared.

"In this case, we would not expend new energy. We would put existing energy to use."

"There would be essentially no operating cost, even at present 'low efficiency' of thermoelectric generators," he said.

Blowers and controls now are generally powered by normal electrical service. "The gas industry is interested in obtaining this electricity from gas. A thermoelectric converter might be the answer."

According to Dr. Milliken, this not only would free gas heating systems from electrical interruptions, it also would make the systems more efficient. With direct current from a thermoelectric generator to energize the blower of a forced air system, the speed of the blower would be in direct ratio to the amount of heat to be distributed.

The higher cost of a direct-current blower motor in initial installation would be offset by the elimination of both the electrical hook-up and the hidden secondary thermostat controlling the blower motor.

Dr. Milliken believes forced air furnaces for the market could be equipped with thermoelectric generators within a few years.

By utilizing the pilot flame, the same idea also could be applied to other gas appliances using electrical service for controls and lights.

The researchers at Northern Illinois are convinced of the potential of the thermoelectric generator, and believe that units will reach the consumer market earlier than the fuel cell, another type of gas-operated electric power generator now under development.

Thus, some day in the not-too-distant future gas fuel cells promise to create electricity to run the home, while gas furnaces and other appliances create their own electric power systems through thermoelectric generators.

Facts and figures

(Continued from page 13)

and electric residential appliances up, but has not yet taken full effect. Shipments of gas-fired central heating equipment in March, 1961, show a decline of 6.1 per cent from 1960.

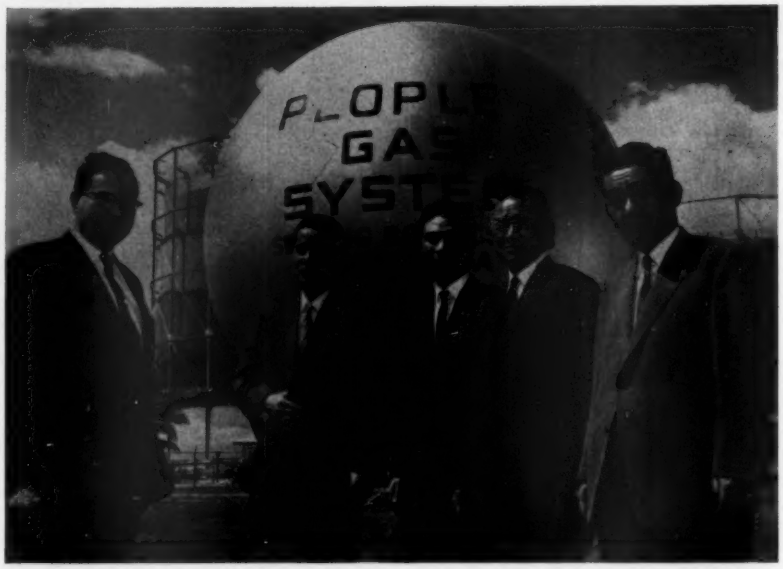
March, 1961, water heater shipments aggregating 249,400 units were affected to the extent of showing a 0.8 per cent increase from last year.

Gas range manufacturers shipped 150,800 built-in and free standing ranges in March.

Because the replacement market is an important factor in total gas range sales, this appliance was affected only moderately, by new home construction, which was up 2.7 per cent from the previous month, but down 13.7 per cent from March, 1960.

It would appear that weather had much to do with the sales setback in early 1961, and industrial officials now look forward to a good spring season.

Peoples Gas System conversion techniques interest Japanese



Japanese gas men, who travelled more than 8,000 miles to study conversion programs of Peoples Gas System of Florida, visit N. Miami Beach plant. Left to right are: G. V. Justin, vice president, operations, Peoples Gas, Heie Kawasaki, Matahiko Kobari, Satoshi Tojinbara, and Gennosuke Yamada

SUCCESSFUL CONVERSIONS by Peoples Gas System from carburetted water gas to oil gas in 1951 and from manufactured to natural gas in 1959 brought three Japanese gas utility executives to Miami from Tokyo to study the programs followed by the Florida company.

Tokyo Gas now manufactures both carburetted water gas and oil gas in six plants with a combined annual capacity of more than 65-billion cubic feet. The gas has a heat value of 400 Btu per cubic foot which the company plans to increase to 550 Btu.

"Your success in your conversion programs is widely known among gas people," officials of Peoples Gas System were told by Satoshi Tojinbara, chief of the sales department of Tokyo Gas Co., Ltd.

Other members of the Japanese study team were Gennosuke Yamada, assistant engineer to the sales department chief, and Heie Kawasaki, manager of Tokyo Gas' Shibuya branch office. Accompanying them as guide and interpreter was Matahiko Kobari of New York City, U. S. representative of the Mitsubishi International Corp.

George V. Justin, vice president-operations, who planned and supervised Peoples' conversion to natural gas, C. W. Davis, director of operations for the company's East Coast Division, and Newton Bollinger, Peoples' gas engineer, received the Japanese gas men.

The Tokyo Gas Co.'s 1960 annual report shows that the company began business in 1874 and now serves more than 1,770,000 customers in Tokyo, Yokohama and their suburban towns. It also owns two subsidiary companies, Tokyo Coke Co. and Kanto Tar Products Co. Total assets of the parent company at the end of 1960 were in excess of 60-billion yen, approximately $170-million.

The Japanese gas men expressed surprise when told that more than 80 per cent of Peoples' customers pay their bills by mail and that this is probably true throughout the U. S. They said they have to collect their bills "on foot" and employ more than 700 collectors for this job.

Gas utilities and appliance companies sponsor Mrs. America contests

REGIONAL ADVERTISERS will play an important role in the 23rd annual Mrs. America Contest, according to Bert Nevins, president of Mrs. America Inc., which is offering $30,000 in prizes in the competition to select the nation's outstanding homemaker.

Gas utility companies that have contracted to sponsor state contests include: Savannah Gas Co. for Georgia; Michigan Consolidated Gas Company for Michigan; Minneapolis Gas Company for Minnesota; Ohio Fuel Gas Company, East Ohio Gas Company, River Gas Company and West Ohio Gas Company for State of Ohio; Nashville Gas Company for Tennessee and Lone Star Gas Company for Texas.

Other national participants, including Johns-Manville; the Toni Company; Tupperware Home Products and five of the country's leading gas range manufacturers (RCA Whirlpool, Magic Chef, Tappan, Caloric and Universal) are conducting extensive advertising, merchandising and publicity programs to add impetus to the state and national competitions.

Each state finals is composed of a series of homemaking tests which enables contestants to demonstrate their domestic skill. The plan for the advance promotion and staging of these events is part of the nationwide Mrs. America program, and it is geared to build traffic, create interest, and establish good will.

House-on-the-Roof

(Continued from page 17)

"field" homes has averaged between 400 and 500 visitors per week.

Keeping the promotion going is a well-planned radio, TV, newspaper, and billboard advertising program. On the natural gas companies' daily radio and TV news shows, there are one-minute spots extending over two months. Forty-five billboards show the House-on-the-Roof and a series of 24 newspaper ads supplement the promotion.

To give full recognition to all participant-sponsors, particularly in printed posters, ads and billboards, a special logo was designed incorporating the identifying symbols of an All-Gas Blue Star Home, U.S. Steel, Kaufmann's and Edward M. Ryan.

As an added incentive to those who visit the roof-top house, a Coraloc free-form steel swimming pool will be given away. Each visitor receives a blank on which they are to sketch the shape of pool they would like to have built on their property. Then, in a short statement, they are to give reasons why they would like a pool. Edward M. Ryan will install the pool and build a bathhouse; U.S. Steel will supply recreation equipment; patio furniture will come from Kaufmann's and the pool will be heated, of course, with gas.

A major impetus to new home building and new sales is the generation of interest and enthusiasm among prospective home owners. Pittsburghers are flocking to the amazing House-on-the-Roof and are showing unbounded interest and enthusiasm. And there is not a shadow of doubt among the sponsors that their venture will pay off—in new sales.

Industry news

Gas Inc. executive on World's Fair board

STANLEY B. FINCH, executive secretary of Gas Inc., has been named chairman of the board of directors of the newly-formed New York World's Fair Exhibitors Association.

The association, organized with the approval of the World's Fair Corporation, will represent exhibitors in contacts with management authorities of the fair.

Mr. Finch said the association will cooperate with the management to insure the greatest success of the 1964-65 fair, will aid in welcoming visitors, and will assist at official functions. All exhibitors at the fair are eligible to join the association.

Mr. Finch served as executive secretary of the 1939-40 New York World's Fair Exhibitors Association and helped form Gas Inc. to represent the nation's major gas utilities, gas pipeline companies, and manufacturers of gas appliances at the fair.

The gas industry was one of the earliest supporters of the fair and the first to sign a lease for exhibition space.

Industry task force obtains New York O.K. on gas refrigerators

THE BOARD OF HEALTH of the City of New York enacted a resolution on May 18 which called for the acceptance of A. G. A. approved gas refrigerators in our largest city.

For the past several months a gas industry Task Force has been cooperating actively with the New York City Health Department in the formulation of a plan to help assure the repair and safe operation of obsolete or defective units. For the most part the units involved date back to 1941, and thus do not contain many technological improvements. Water-cooled models, a type last made in 1933, were banned, since appropriate replacement parts for these are not available.

The newly enacted resolution requires that gas refrigerators contain either original or replacement parts, in good working order; flue components not subject to corrosion, a fixed mounted dust incinerating burner, pressure regulator, gas filter, and thermostat, as well as the controls installed or specified by the manufacturer.

In regard to the sale and installation of current models of gas refrigerators, no action was found necessary. Thus there are no restrictions on their sale in New York City.

The New York City Department of Health's interest in gas refrigerators stems from carbon monoxide incidents, primarily in one room dwelling units of multiple dwellings, caused by some defective older units.

Members of the Task Force group from the industry included: Carl W. Roll, The Brooklyn Union Gas Company; Louis J. Wagner, Consolidated Edison Company of New York, Inc.; Irving Lecin, Long Island Lighting Company; Dr. Carl Ashby, Norge Sales Corp.; Joseph Dye, Borg-Warner Corp.; Dr. Benjamin Phillips and J. C. Kellner, Whirlpool Corp.; James Ruffalo, Gas Appliance Manufacturers Association; Norman Ulrich, Refrigeration Trade Association of New York, Inc., and Marvin Ringler, A. G. A.

Southern Gas Association meets in New Orleans, elects new officers

THE SOUTHERN Gas Association wound up its 53rd annual convention held in New Orleans, April 24-26, by electing as its president H. A. Eddins, president of Oklahoma Natural Gas Company.

Mr. Eddins had served two years as S. G. A. vice president. He succeeds James A. Wilson, Shreveport, as head of the Dallas-based trade association, whose membership includes natural gas distribution and transmission companies in 14 Southern states, and manufacturers and distributors of natural gas appliances and equipment.

Other officers elected were: C. L. Nairne, New Orleans, first vice president; Buell G. Duncan, Charlotte, N. C., second vice president; B. F. Wombacker, Dallas, treasurer; and Jack A. Bell, Columbus, Ga., secretary. W. C. McGee Jr., Houston, was elected chairman of the advisory council, and Hugh F. Steen of El Paso vice chairman.

Newly-elected directors are James J. Chaisson Jr., Atlanta, Ga.; John F. Pidcock, Savannah, Ga.; John C. Parrott, Roanoke, Va.; J. C. Reid, Dallas; and M. V. Cousins, Shreveport.

Dan L. Hill, El Paso; and H. N. Oldham, Amarillo, were elected to full terms.

SGA officers: H. A. Eddins, Oklahoma Natural Gas Co., president; C. L. Nairne, New Orleans Public Service, 1st vice president; B. F. Wombacker, Southern Union Gas Co., treasurer; J. A. Bell, Gas Light Co., Columbus, Ga., secretary. Not shown is B. G. Duncan, Piedmont Natural Gas Co., 2nd vice president

Mr. Eddins, a veteran of 30 years experience in the public utility business, joined Central Illinois Electric and Gas Company after he was graduated from Texas A & M College.

Mr. Eddins later was employed in the rates and analyses department of Stone & Webster Service Corporation for two years before he was named general manager of the Citizens Gas Company of Stroudsburg, Pa.

Called into service in 1941, Mr. Eddins served in the U. S. Army Corps of Engineers. He was awarded the Legion of Merit and was released from active service as a colonel.

He returned to Stone & Webster for two years before he was appointed operating vice-president of Laclede Gas Company in St. Louis. In 1954, he accepted the position of executive vice president of Oklahoma Natural Gas Company and the following year was elected president of the company.

Mr. Eddins is a trustee of the University of Tulsa, a director of the Oklahoma Cement Company, a trustee of Oklahoma City University Industrial Foundation, and civilian aide to the secretary of the Army for the State of Oklahoma.

Highlights of the S. G. A. convention included a ladies' luncheon in the French quarter of New Orleans, a general luncheon, which featured Dr. Murray Banks, psychologist, author, and nationally syndicated columnist, as principal speaker, and an exhibit of new developments in the gas industry. Convention-goers saw the latest in gas turbines, wall heaters with thermoelectric generators, and corrosion detectors, as well as new and novel items developed by PAR Research. Especially noteworthy was a display of new developments by United Gas Corporation.

WLGA presidents get together

Incoming and outgoing presidents of Western Liquid Gas Association are shown at WLGA annual convention at Sacramento, Calif., April 13-15. C. Roland Usher, left, vice president, American Liquid Gas Corp., was named president, to succeed Bennett C. Tilden, president, Teeco Products Corp.

A. G. A. announces new thermoelectric research

THE USE OF external electricity to perform auxiliary functions on some gas appliances may soon be eliminated, A. G. A. said recently in announcing a new research project.

Transitron Electronic Corp., Wakefield, Mass., under an agreement with A. G. A., has begun a project aimed at reducing the cost of thermoelectric devices to make them commercially practical. These devices would power blowers and controls on furnaces and other gas appliances.

When the cost of thermoelectric devices is reduced, such appliances as gas furnaces would be totally self-sufficient, using electricity produced by heat to operate motors, fans and controls. One advantage is that gas appliances could operate when other power is disrupted.

The goal of the project is to develop thermoelectric modules or units which will provide power at less than $1 per watt. At present, the cost per watt of experimental models of appliances using thermoelectric couples does not permit mass production.

Transitron, the nation's second largest manufacturer of semi-conductors, plans to develop samples of power modules which can be produced for inclusion in various gas appliances.

"Emmy" to gas show

Barbara Stanwyck holds the "Emmy" Television Academy award, for best star in a 1960 TV series —the gas industry's "Barbara Stanwyck Show"

Robertshaw plant in "top 10"

ROBERTSHAW-FULTON's newest manufacturing plant, built to house the company's Robertshaw thermostat division near Youngwood, Pa., has been selected by a nationally circulated business magazine as one of the "Top Ten" manufacturing plants completed in the United States during 1960.

The new Robertshaw plant, located on the Pennsylvania Turnpike 28 miles east of Pittsburgh, was chosen by *Factory* magazine from among 500 plants considered for the award.

In making its 27th annual selections, the magazine cited the 10 winners for over-all excellence in planning and construction as production entities.

Principal products of the Robertshaw thermostat division are controls for gas ranges, gas dryers, and other gas appliances. Outstanding among its products are the "Burner-with-a-Brain," so named by the American Gas Association; "Flame Master," the automatic oven control for low temperature settings, and the "Flame Set" top-burner control.

PUAA presents ad awards

NINETY-FOUR UTILITY companies in the United States, Hawaii, and Canada have won outstanding honors in the field of advertising, it was announced May 4, at the Public Utilities Advertising Association's annual convention in Detroit.

Award certificates were presented to representatives of winning electric, gas, and water companies for achievement in 20 classifications of advertising and public relations material. In all, 168 awards were made.

More than 2,500 entries were received in this year's contest, the association's 38th annual competition, and the oldest continuous advertising competition in the world, according to William L. Perdue, chairman. Mr. Perdue is director of publicity, Kansas Power & Light Company.

The contest included newspaper advertisements, magazines, employee newspapers, direct mail, publications, displays, posters, billboards, annual reports, radio and television, and motion pictures. Most of the entries were divided into three categories according to the size of the utility—up to 150,000 customers, more than 150,000 and less than 400,000, and more than 400,000.

Three companies won five awards each. They are the Commonwealth Edison Co., Northern States Power Co., and Pacific Gas & Electric Co. Five firms (or combinations of firms) won four awards each. They are Gulf States Utilities Co., Jersey Central Power & Light Co. and New Jersey Power & Light Co., Minnesota Power & Light Co., Quebec Power Co., and South Jersey Gas Co.

Fourteen companies won three awards each. They are Consumers Power Co., Hawaiian Electric Co., Ltd., Indiana & Michigan Electric Co., Milwaukee Gas Light Co., Minneapolis Gas Co., The Narragansett Electric Co., Ohio Fuel Gas Co., Pennsylvania Power & Light Co., The Peoples Gas Light & Coke Co., Public Service Co. of Oklahoma, Savannah Gas Co., Union Electric Co., Wisconsin Public Service Corp., and Wisconsin Gas Co.

All award-winning material is published in the association's annual Better Copy Contest Awards Book, copies of which can be purchased by contacting Mr. Perdue.

Public relations contest starts

THE FIFTH annual A. G. A. Public Relations Achievement Awards Contest currently is getting under way.

All member companies, regardless of size, are eligible to participate. A small company can compete successfully for awards since neither the cost nor the scope of a project is a decisive factor in the judging. Elaborate presentations are not required.

Each award-winning activity must demonstrate its contribution to better public opinion and understanding of the company, gas and gas service, or the gas industry as a whole.

The purpose of the Public Relations Achievement Awards is to recognize and honor A. G. A. member companies for outstanding accomplishment in public relations.

Information on the contest can be obtained from the Public Information Bureau, A. G. A.

Gas company first in safety

NEW YORK STATE Natural Gas Corporation ranked first among public utilities reporting to the National Safety Council in 1960.

Topping the list of gas companies in its class (those working between 540,000 and 1,680,000 man-hours yearly), New York Natural has received the council's Winner Award for completing the year without a lost-time injury.

President Richard J. Plank credited the achievement to two important factors:

"Our employees are making greater use of such safety equipment as safety glasses, helmets and shoes; and there exists a fine spirit of friendly competition, with each working unit jealously defending its safety record, and trying to do even better than other units."

Employees worked a total of 1,523,337 safe man-hours during the year.

LPG Council plans '62 fete

PREPARATIONS FOR next year's celebration of the liquefied petroleum gas industry's 50th anniversary have "gone operational" with appointment of a National LP-Gas Council committee to direct the nationwide activities.

Andrew R. Olson, president of the Propane Corporation of Cleveland, will serve as chairman of the anniversary committee, according to D. G. O'Meara, council president. Other members include chairmen of the council's advertising, public relations and dealer sales aid committees, who in turn selected three members from their respective committees to serve on the 50th anniversary committee.

Because of the historical importance of the 1962 Golden Anniversary, the National LP-Gas Council has named Harold L. Costello, president of Imperial Gas Company of Los Angeles, as historical consultant. Mr. Costello has been active in the industry for 35 years.

The industry's golden jubilee program will center on the historic date of May 17, 1912. This was the day that American Gasol Company, the first American company organized to produce and market LP-Gas extracted from natural gas and natural gasoline, obtained its first customer. The first LP-Gas installation at the farm home of John W. Gahring near Waterford, Pa., supplied fuel for cooking and lighting.

Award to Commonwealth

THE NATIONAL SAFETY COUNCIL has presented the Certificate of Commendation plaque to the Commonwealth Natural Gas Corporation for an excellent safety record covering a period of two years.

Howard Pyle, president of the council, congratulated W. H. Trapnell, president of Commonwealth, for the company's injury-free record of 265,555 man-hours from September 10, 1958, through December 31, 1960.

This is the second distinguished safety award received by Commonwealth within the past few months. The other, a bronze plaque, was presented the company at the annual convention of the American Gas Association.

Indiana Gas Association elects officers

GEORGE R. WOEHLER of Evansville, vice president and controller of Southern Indiana Gas and Electric Company, was elected president of the Indiana Gas Association at the annual convention held at French Lick, Ind. recently.

Louis A. Kirch of Indianapolis, vice president and chief engineer of Indiana Gas and Water Company, was elected first vice president of the association; H. Patrick Thomas of Muncie, president of Central Indiana Gas Company, was elected second vice president; and Richard A. Steele of Indianapolis, data processing manager of Citizens Gas & Coke Utility, was reelected secretary-treasurer.

Results of the election were announced to the 350 delegates attending the convention by C. D. Rees, vice president, general operations for Northern Indiana Public Service Company, the association's president during the past year.

One of the highlights of the convention program was a panel discussion of the overall problems of the gas industry. Moderated by Mr. Rees, the three segments of the gas industry were represented by:

L. Dan Jones, counsel, Independent Petroleum Association of America—producer, Marvin Chandler president, Northern Illinois Gas Co.—distributor, and John F. Merriam chairman of the board, Northern Natural Gas Co.—pipeline.

Gas air conditioning rentals proposed

GAS UTILITIES have been urged to exploit their financial strength by leasing gas air conditioning equipment to consumers, who may hesitate to make outright purchase because of its higher initial cost, as compared to electric cooling units.

David W. Hoppock, vice president of Bryant Manufacturing Co., Indianapolis, Ind., put forth this suggestion recently in a series of speeches at A. G. A. regional sales conferences.

The plan, developed by Kenneth Kessler of the City Gas Company of Miami, was tested last year, with highly successful results.

The appeal of this arrangement is largely to the commercial market and the professional man. The user acquires his air conditioning on a 10-year lease. The monthly payments work out to a modest amount and are handled as operating expense for tax purposes. This is a very common business practice today; so much so, that equipment leasing is a big business.

In last year's experiment, the lease plan involved 17 installations, each using Bryant three-ton gas units. Different types of customers were chosen, including a doctor, a dental laboratory, a home, a restaurant, a hotel, and a factory office. Doctors and lawyers, because of their excellent credit rating, are considered good prospects, and they usually own their own buildings.

Mr. Hoppock outlined the basic pricing structure as follows: The utility absorbs the cost of the unit, including a $100 contingency reserve on each sale; adds overhead, profit, and financing charges; and bills the customer a monthly charge of under $30, in this case.

Rincliffe receives public relations award

R. G. Rincliffe, president, Philadelphia Electric Co., receives 1961 award of Philadelphia Public Relations Association for his promotional efforts on behalf of the area his company serves. F. C. McGlinn, left, and J. M. Kiss, right, both representing the public relations association, look on

Highlights of cases before the Federal Power Commission

Bureau of Statistics, American Gas Association

Certificate cases

● **Hope Natural Gas Co.** has filed an application proposing to construct approximately 18 miles of small diameter pipeline to replace a system of old, uneconomic gathering facilities and to connect the new pipelines to 76 former oil wells. These facilities and appurtenant equipment, to be constructed over a two year period at a cost of about $790,000, will form an extension of the Fink storage pool.

● **Northern Natural Gas Co.** proposes the construction of natural gas facilities to transport and deliver natural gas to a hydrocarbon extraction plant, to be built by Northern Gas Products Co., a wholly-owned subsidiary. The facilities to be constructed include about seven miles of 30-inch loop pipeline in Oklahoma and Kansas, and the installation of an additional 4,800 horsepower compressor unit in Kansas. Estimated cost is $3.3 million.

● **Panhandle Eastern Pipe Line Co.** has received a two year temporary authorization to test the Waverly storage field in Morgan and Sangamon Counties, Ill. In his decision, Examiner Frazee noted that peak pipeline capacity is insufficient to meet customers' future requirements, and therefore requires expansion of either pipeline facilities or storage capacity. The total cost of testing is estimated at $4.8 million, of which $2.5 million has already been spent in the first stage of testing. The current test phase will include the injection of up to 6 billion cubic feet of natural gas into the St. Peter formation in order to evaluate reservoir and collection data.

Rate cases

● **Atlantic Seaboard Corp.**, in a proposed settlement of four rate cases, approved by the Commission, will refund initially about $6 million, including interest at 6 per cent. Additional refunds will depend upon final determination of supplier companys' rate cases, and a court case concerning income tax benefits of liberalized depreciation. Three of the rate cases involved a combined annual increase of nearly $8 million, while the fourth case involved a change in the basis for adjusting rates for Btu content of gas sold. The proposed settlement was based on an over-all rate of return of 6.25 per cent for the period from July 14, 1957 to April 7, 1959, and a 6.50 per cent rate of return from April 9, 1959 through April 4, 1960.

● **Home Gas Co.** has received conditional approval of its wholesale natural gas rate settlement, under which refunds will accrue to six customer companies. Approval was conditioned upon passing along to customer companies possible refunds made by supplier companies. Under the settlement, immediate refunds amounting to about $311,000 on an annual basis will be made together with interest at 7 per cent. The need for higher rates was based on the increased cost of purchased gas, general expenses, and the need for a 6.8 per cent rate of return. The settlement allows a 6.5 per cent return.

In other actions, the FPC has approved the merger of The Housatonic Public Service Co. and The Connecticut Light and Power Co. with the latter as surviving company. In another action, Michigan Consolidated Gas Co. was allocated 100 million cubic feet of natural gas daily between May 1 and October 31, 1961 from the system of Panhandle Eastern Pipe Line Co. A similar amount was allocated in an interim order covering deliveries from September 21 through October 31, 1960. The former arrangement whereby Michigan Consolidated Gas Co. purchased 127 million cubic feet daily from Panhandle Eastern Pipe Line Co. was cancelled by the Commission in December 1958, and the gas allocated to other customer companies.

SUMMARY OF PIPELINE COMPANY RATE FILINGS—MARCH, 1961

	Number	Annual Amount
Increases under suspension at beginning of month	110	$395,198,500
Increases suspended during month	1	895,900
Increases disposed of after suspension	2	5,200
Amount allowed	—	3,500
Amount disallowed	—	1,700
Amount withdrawn	—	—
Increases allowed without suspension	—	—
Increases suspended and pending at end of month	109	$396,089,200

SUMMARY OF INDEPENDENT GAS PRODUCER RATE FILINGS—MARCH, 1961

	Number	Annual Amount
Tax rate increases allowed without suspension	2	$ 1,136
Other rate increases allowed without suspension	59	476,862
Rate increases suspended	106	748,248
Total rate increases	167	1,226,246
Tax rate decreases allowed without suspension	—	—
Other rate decreases allowed without suspension	—	—
Total rate decreases	—	—
Total rate filings (all types)	1,122	—
Total rate filings acted on from June 7, 1954 to March 31, 1961	54,064	—
Rate increases disposed of after suspension (during month)	15	689,413
Amount allowed	—	189,706
Amount disallowed	—	98,877
Amount withdrawn	—	400,830
Rate increases suspended and pending at end of month	3,708*	$169,949,458*

* Includes 1 Docket and 1 increase in G-9146, amounting to $82,970, Shamrock Oil and Gas Corp., and 1 Docket and 1 increase in G-9498, amounting to $146,883, Shamrock Oil and Gas Corp. remanded by D.C. Court on 3-9-61.

SUMMARY OF PIPELINE COMPANY CERTIFICATE FILINGS AND ACTIONS—MARCH, 1961

	Number of Applications	Miles of Pipeline	Compressor Horsepower	Estimated Cost
Pending at beginning of month*	193	6,664	630,290	$838,759,136
Filed during month	32	479	32,000	52,388,563
Issued during month	26	126	5,400	20,514,274
Otherwise disposed of during month	2	—	—	—
Pending at end of month	197	7,017	656,890	$870,633,425

* Adjusted to include amendments and supplements to applications and modifications of certificates.

New book on gas industry finance published

FINANCING THE Natural Gas Industry, The Role of Life Insurance Investment Policies," a new book on the investment policies of life insurance companies and more specifically, the role which they played in the postwar development of the natural gas industry, has been published by Columbia University Press, New York, N. Y. The author is Richard W. Hooley.

The book traces the prewar and postwar financing policies and the patterns of life insurance investments, and presents a number of reasons why life insurance companies, during the 1950's, owned approximately 78 per cent of the natural gas bonds. Among the reasons given are the high yields offered by these securities and the development of flexible loan instruments, whose terms are conditioned to cover the insurance companies for risk exposure.

Dr. Hooley discusses the special lending terms imposed by insurance companies to minimize their risks. Maturities have been scaled to match gas reserves, special acceleration clauses have been introduced, and restrictions have been placed on the borrower's financial policies. The author presents his data in clear form and then investigates the effectiveness of the loan provisions. He offers conclusions as to the effect of the tailored loan agreements upon the traditional lender-borrower relationship.

To provide detailed illustration of the way these financial policies have developed, Dr. Hooley presents two "case studies" in financing.

NEGA corrosion school June 21-23

A GAS MEASUREMENT, Control, and Corrosion School will be held at the Worcester Polytechnic Institute, June 21-23, according to an announcement by Harold L. Dalbeck, president of The New England Gas Association, and Clark Belden, managing director of the NEGA.

This school, sponsored by the operating division of NEGA, is the fifth such venture in as many years offering courses in gas measurement, pressure, and flow control and telemetry. The first four schools received many favorable comments from instructors and exhibitors from many states. At the first school in 1957, the registration was 140. One hundred and seventy-six attended the 1960 school.

Inaugurated this year will be a new series of courses in basic corrosion, designed to help the "man in the street" recognize potential trouble spots and take appropriate corrective action. Student reaction to these new courses will be evaluated to determine possible expansion of this phase at future NEGA schools.

In addition to the classroom activities, a substantial equipment exhibit has been planned, as in previous years, so that students may see the various instruments and devices discussed in the school program and obtain additional information from dealers on operating possibilities and installing problems. Many of the equipment exhibits have working models, cut-away design and other training aids.

Gold Star gets Good Housekeeping seal

THE AMERICAN Gas Association has announced that its Gold Star standards for gas ranges have been given the coveted *Good Housekeeping* magazine Guaranty Seal.

The seal will be used in combination with the Gold Star Award for the first time in the June issue of the magazine. It was given to Gold Star standards after extensive study by *Good Housekeeping*, which guarantees items awarded the seal.

The Gold Star project was begun two years ago by A. G. A. to promote top of the line gas ranges. Ranges receiving the Gold Star must meet exacting standards.

Established as a buyer's guide to quality, the Gold Star program is one of the largest undertakings of the gas industry. Expenditures for the national and local promotion and advertising program supporting it are estimated to be $25 million annually.

A. G. A. is planning an extensive promotion and merchandising program emphasizing that Gold Star standards have earned the *Good Housekeeping* Guaranty Seal.

Arkla, MidSouth Gas in proposed merger

THE BOARDS of directors of Arkansas Louisiana Gas Company, and MidSouth Gas Company, have approved, in principle, a proposed merger of MidSouth into Arkla, subject to the approval of stockholders of both companies and, to the extent required, by regulatory agencies having jurisdiction.

Announcement of the action was made in a joint statement issued in Little Rock, Ark., by W. R. Stephens, chairman of the board and president of Arkla, and by Carl E. Cloud, president of MidSouth.

If the merger is approved, stockholders of MidSouth would receive one share of Arkla common stock for each two shares of MidSouth common stock. The surviving company will be known as Arkansas Louisiana Gas Company.

The plan for merging the two companies contemplates that the facilities of MidSouth will continue to be operated by those now actively employed by that company, and that the present stockholders of MidSouth will be represented on the board of directors of the merged company.

MidSouth is a natural gas distribution company serving 48,453 customers in 52 Arkansas communities and with headquarters in Little Rock. Arkla is an integrated natural gas company serving 378,000 utility customers in 287 communities in Arkansas, Louisiana, Texas, Oklahoma, and Kansas, with principal offices in Little Rock and Shreveport, La. In addition, Arkla operates several other businesses through wholly-owned subsidiaries.

NACE announces plans for '61-'62

NATIONAL ASSOCIATION of Corrosion Engineers has announced its coming conferences for 1961-62.

The 8th Annual Conference and 1962 Corrosion Show will be held in Kansas City, March 19-23, 1962. Robert H. Goodnight, Cook Paint and Varnish Works, North Kansas City, Mo. will be in over-all charge of both the conference and corrosion show. He was appointed by NACE President E. C. Greco, United Gas Corp., Shreveport, La.

A corrosion short course will be held at the University of Oklahoma September 27-29, 1961. The course is sponsored by the Central Oklahoma Section of NACE, and the University of Oklahoma.

The Western Regional Conference of NACE will be held October 4-6, 1961, Portland, Ore., at the Benson Hotel.

Ten symposia on corrosion, technical committee meetings of corrosion engineers, and an "Exhibit in Miniature" are planned for the 1961 North Central Regional Conference. The conference will be held October 9-11, St. Louis, Mo., Chase Park Plaza Hotel.

South Central Region will hold its 1961 Conference and Exhibition October 24-27 at the Shamrock Hotel, Houston, Texas, and the regional corrosion conference of the Southeast Region, will be held November 27-December 1 at the Key Biscayne Hotel, Miami, Fla.

West coast pipeline

This sideboom tractor and quadruple drilling rig bore away lava rock for the 1,400 mile Alberta-California pipeline of Pacific Gas & Electric Co.

Transco has 10 safe years

TRANSCONTINENTAL GAS Pipe Line Corporation has had a perfect record for protection of the public and property along its 5,193 miles of pipeline for 10 consecutive years, according to the company's annual safety report.

No personal public injuries or public property damages were reported during 1960 to mar one of the best safety records in the natural gas transmission industry. Transco is eligible this year for several state safety awards.

In addition, perfect employee safety records were established by Transco for all operations in the states of Alabama, North Carolina, Maryland, and New York.

The Transco system covers 12 states.

House organ editor cited

WILLIAM J. RASP, editor of *News and Views*, employee publication of the Pittsburgh Group Companies, Columbia Gas System, Pittsburgh, Pa., has received a $100 award of excellence in the seventh annual nationwide traffic safety awards program, sponsored by the American Association of Industrial Editors.

The awards honor outstanding highway safety promotional efforts of the nation's industrial press, which includes some 9,000 magazines and newspapers published by American industry. Co-sponsors of the annual program are: Allstate Insurance Companies, American Trucking Associations, Automotive Safety Foundation, and the Esso Safety Foundation.

1,000,000 safe man hours

ONE MILLION man hours without a lost-time accident is a record recently achieved by The Kansas Power and Light Company.

The utility established this record when its 1,700 employees throughout its entire system worked 103 days and a total of one million man hours without a disabling or lost-time injury.

Four gas industry companies announce major new expansions

FOUR GAS industry companies announced expansions recently.

Michigan Consolidated Gas Company and its affiliated gas suppliers plan to construct over $45 million worth of new facilities in 1961.

The utility will invest $21,882,000 throughout its system in the state, which will include 175 miles of gas distribution mains. Michigan expects to add 12,200 new customers during the year.

Michigan Wisconsin Pipe Line Company, an affiliate, will spend $19,500,000, including $2,000,000 in Michigan.

The company will install 87 miles of large diameter pipeline to obtain an additional 75 million cubic feet of gas a day from Northern Natural Gas Company in Wisconsin and deliver it to its underground storage fields in western Michigan. Michigan Consolidated expects to obtain an additional 8.5 billion cubic feet of gas annually as a result of this expansion.

The other affiliate, American Louisiana Pipe Line Company, will install about $4 million in facilities to supplement its supply from Louisiana gas fields.

Texas Eastern Transmission Corporation announced plans for an $83 million expansion program, which will increase daily delivery capacity of its natural gas pipeline system by 225 million cubic feet.

The program will include construction of a new pipeline across North Louisiana into Mississippi, construction of four new compressor stations, addition of compressor horsepower at several other stations, construction of numerous loop and lateral pipelines, and necessary metering and regulating facilities, according to Orville S. Carpenter, Texas Eastern president.

Gas necessary for the expansion will be provided principally by United Gas Pipe Line Company, Southern Natural Gas Company, and Texas Gas Transmission Corporation under long-term contracts.

Lone Star Gas Company and its wholly-owned subsidiary, Lone Star Producing Company, have announced a record initial investment budget of $33.6 million for 1961.

The '61 budget exceeds the companies' 1960 initial budget by some $8.2 million, according to L. T. Potter, of Dallas, president.

Mr. Potter said about two-thirds of this year's initial budget will be invested to maintain and strengthen natural gas service in and around 462 cities, towns, and communities served by Lone Star in Texas and Southern Oklahoma.

The producing company will spend the balance, approximately $10.9 million of this year's budget on drilling and deepening oil and gas wells, new leases, seismographic service, and other exploration costs, Mr. Potter noted.

The Pacific Gas and Electric Company and the Pacific Gas Transmission Company have awarded a contract for a 41-station microwave radio communication system to Motorola Inc.

The microwave system, scheduled for operation in August, 1961, will provide communications for the two companies for the operation of the Alberta-California natural gas pipeline, within the United States.

The backbone of the microwave radio system will extend 970 path miles from the Canadian border, through Idaho, Washington, Oregon and California, terminating near San Francisco.

In addition, there are to be 300 path miles of stubs feeding into the backbone system.

New publications listed by American Gas Association

ACCOUNTING

• **Compendium Report—1961,** Compilation of papers, articles and presentations concerning accounting division, EEI and accounting section, A. G. A., activities for the years 1950 through 1960. $2.00, non-members $4.00. Cat. no. 47/A.

• **Company Policies Affecting Customer Relations,** second edition 1961, presented by Customer Relations Committees of EEI and A. G. A. A report on 95 questions concerning policies directly affecting customer relations. $3.00, non-members $5.00. Plus postage. Cat. no. 49/A.

• **Customers Accounting Methods and Equipment Directory, 1961,** by E. J. Jasper and W. C. Wendt. A directory of methods, procedures and practices in use throughout the industry. $3.00, non-members $5.00. Plus postage. Cat. no. 50/A.

• **Panel Discussion of Varying the Rate of Recovery of Capital—Is an Increase Always the Right Answer?,** by C. D. Porter. Conference paper 1961. Free. Cat. no. 48/A36b.

COMMERCIAL PROMOTION

• **Restaurant Management and Restaurant Equipment Dealer,** reprint—May 1961 issue. 15 cents. Cat. no. 54/C.

• **Incineration Sound Slide Film—"Let's Be Good Neighbors."** 16 mm, color. Film presentation on commercial gas incineration. $23.00. Cat. no. 55/C.

• **What You Can Learn About Fuel Efficiency and Economy from an Ultra Modern Motel in Little Rock, Ark.** (The Coachman's Inn Story), direct mail selling piece to architects and consulting engineers. Free. Cat. no. 56/C.

GENERAL MANAGEMENT

• **Our National Energy Dilemma,** by E. C. McGraw. Conference paper. 25 cents. Cat. no. 50/G-1.

• **The Need for Profit in Regulated Industry,** by C. A. Ulffers. Conference paper. 25 cents. Cat. no. 50/G-2.

• **The Evolving Mix of Public and Private Enterprise,** by J. J. Corson. Conference paper. 25 cents. Cat. no. 50/G-3.

• **Your PAR Research—A Report to the General Management Section,** by F. W. Batten. Conference paper. 25 cents. Cat. no. 50/G-4.

• **Economics of Underground Natural Gas Storage,** by H. H. Fitzgerald. Conference paper. 25 cents. Cat. no. 50/G-5.

• **The Safe Sixties,** by R. N. Papich. Conference paper. 25 cents. Cat. no. 50/G-6.

• **Milwaukee Gas Light Company's Use of Electronic Data Processing Equipment in Purchasing and Stores Functions,** by R. L. Getting. An outline. 25 cents. Cat. no. 50/G-7.

• **Labor Relations in an Automated Age,** by R. W. Fleming. Conference paper. 25 cents. Cat. no. 50/G-8.

RESEARCH

• **Solution Thermodynamics for Absorption Refrigeration,** by D. H. Andrews and R. A. Rousseau. Report on air conditioning. $1.50. Plus postage. Cat. no. 5/ACR.

STATISTICS

• **Techniques for Analyzing the Effect of Business Changes Upon Gas Sales.** Free. Cat. no. 69/S.

• **Proved Reserves of Crude Oil, Natural Gas Liquids and Natural Gas,** Dec. 30, 1960, Vol. 15. Free. Cat. no. 19g/S.

UTILIZATION

• **Gas Appliance Service Manual.** Future manuals will be sold only in combination with the supplement service. 1 copy with supplement: $8.50, 2 to 10 copies: $8.20, 11 to 100 copies: $7.85, over 100: $7.45 each. Cat. no. 27/U.

• **Heating Controls Service Manual.** Future manuals will be sold only in combination with the supplement. 1 copy with supplement: $9.00, 2 to 10 copies: $8.75, 11 to 100: $8.50, over 100: $8.00 each. Cat. no. 23/U.

GOLD STAR

• **Gold Star Good Housekeeping stickers,** 4 x 6 inch stickers for use on ranges. For resale to manufacturers only. 1 cent each. Cat. no. 1/GS.

• **Gold Star Good Housekeeping streamers,** 30 x 45 inch paper streamers. 20 cents each. Cat. no. 2/GS.

• **Gold Star Satin Wall Banner**—sold out.

• **Metal Gold Star Emblem**—sold out.

Personal and otherwise

GAMA names its division officers for 1961

MANUFACTURER DELEGATES to 15 product divisions of the Gas Appliance Manufacturers Association elected division officers and executive committee members during the 26th annual meeting of the association at Boca Raton, Florida.

The 1961 division officers will serve through the balance of this year and until the next GAMA annual meeting, scheduled for April, 1962. Named in the order of chairman, and vice chairman, they are:

Automatic Controls Division—R. A. Sherer, vice president of White-Rodgers Company, St. Louis, Mo., and Francis X. Fessler, divisional sales manager of Penn Controls, Inc., Goshen, Ind.; Automatic Gas Disposer Division—LeRoy Klein, vice president of sales for Caloric Appliance Corp., Wyncote, Pa., and Thomas P. Meyers, general sales manager of Calcinator Corp., Bay City, Mich.; Direct Heating Equipment Division—Robert H. Norris, president of Dearborn Stove Co., Dallas, Texas, and Adrian F. Bauer, president of Empire Stove Co., Belleville, Ill.

Domestic Gas Range Division—S. B. Rymer, president of Magic Chef, Inc., Cleveland, Tenn., and Edward A. Nash, director of gas appliance sales for Norge Sales Corp., a subsidiary of Borg-Warner Corp., Chicago, Ill.; Gas Appliance Regulator Division—Charles Stang Jr., vice president of engineering for Maxitrol Co., Detroit, Mich., and S. D. Andrews, general manager of Deutsch Controls Corp., Los Angeles, Calif.; Gas Boiler Division—Gordon L. Cheasley, plant manager of Richmond Plumbing Fixtures Division, Rheem Manufacturing Co., New Castle, Del., and R. C. Wright, vice president of Iron Fireman Manufacturing Co., Cleveland, Ohio.

Gas Clothes Dryer Division—Edward A. Nash, director of gas appliance sales for Norge Sales Corp., a subsidiary of Borg-Warner Corp., Chicago, Ill., and Robert A. Strain, manager of utility relations for Maytag Co., Newton, Iowa; Gas Conversion Burner Division—Joseph F. Capoun, president of Columbia Burner Co., Toledo, Ohio, and Wallace J. Barnes, vice president of Sonner Burner Co., Winfield, Kan.; Gas Furnace Division—Samuel F. Shawhan, president of Bryant Manufacturing Co., Indianapolis, Ind., and Harold P. Mueller Jr., president and general manager of Mueller Climatrol Division of Worthington Corp., Milwaukee, Wis.

Gas Unit Heater and Duct Furnace Division—Clarence E. Scott, vice president of Sterlairco, Inc., Westfield, Mass., and Marvin L. Stark, vice president of engineering for Peerless Manufacturing Division of Dover Corp., Louisville, Ky., Gas Valve Division—Donald E. Du Perow, vice president of Lincoln Brass Works, Inc., Detroit, Mich., and Walter S. Lee, president of Major Controls Co., Corona, Calif.; Gas Vent and Chimney Division—John H. Schmidt, product development manager for Van-Packer Co., a division of Flintkote Co., Carbon Cliff, Ill., and Marvin L. Stark, vice president of engineering for Peerless Manufacturing Division of Dover Corp., Louisville, Ky.

Gas Wall and Floor Furnace Division—Lee A. Brand, first vice president of Empire Stove Co., Belleville, Ill., and I. V. Hodgkinson of the Williams Furnace Co., Buena Park, Calif.; Gas Water Heater Division—Charles J. Callanan Jr., water heaters marketing manager for the Plumbing and Heating Division, American Radiator and Standard Sanitary Corp., New York, N. Y., and Arthur E. Friedman, vice president of Cleveland Heater Co., Cleveland, Ohio; Relief Valve Division—Nils W. Swanson, vice president of McDonnell and Miller, Inc., Chicago, Ill., and J. Kenneth Lund, director of Technical services for Dole Valve Co., Morton Grove, Ill.

A meeting of the Industrial Gas Equipment Division was not scheduled to be held at the GAMA annual meeting. However, the members of this division did meet at Windsor, Ont., Canada, during the week of the GAMA annual meeting, and elected the following: Chairman—Lowell F. Crouse, vice president of Maxon Premix Burner Co., Muncie, Ind.; Vice Chairman—Ernest C. Lundt, president of Ernest C. Lundt, Inc., Little Falls, N. J.

The Gas Refrigerator Division also did not meet, but that division's 1960 officers will continue to serve for another year. They are: Chairman—George T. Stevens, general manager of Whirlpool Corp., Benton Harbor, Mich., and Vice Chairman—Edward A. Nash, director of gas appliance sales for Norge Sales Corp.

Balthrop is president

THE APPOINTMENT of William P. Balthrop as president of Chrysler Corporation's Airtemp Division was announced today by Charles B. Gorey, Jr., group executive —special products. Mr. Balthrop succeeds P. M. Augenstein who has resigned to accept an executive position with another company.

Mr. Balthrop graduated from the University of Tennessee and has a master's degree in engineering. He joined Chrysler Corporation in 1944 as a graduate student engineer and has held many positions of responsibility in the corporation. For the past year, he has been president of the Amplex Division.

Anchorage appoints

TWO NEW appointments have been announced by Dale Teel, general manager, Anchorage Natural Gas Corporation. Edwin Fisher has been promoted to operations manager, and James Edwards has been appointed to assistant general manager, for construction and operations.

Mr. Fisher has been a resident in Anchorage for the past two years.

Mr. Fisher replaces Howard Hole, who has been serving in an interim capacity.

Mr. Edwards comes from California, and has had 52 years experience in the gas industry.

Arkla elects vice presidents

DUDLEY E. HEATH, Edward R. Gilmore, and William G. Wepfer have been elected vice presidents of Arkla Air Conditioning Corp.

Mr. Heath has been serving as staff coordinator of the Arkla plant at Evansville. Mr. Gilmore was general manager of Arkla's meter division at Russellville, Ala., Mr. Wepfer had been general sales manager.

Mr. Heath has over 30 years' experience in the absorption refrigeration field, having joined Servel, Inc., predecessor of Arkla, in 1930. He served in various posts with Servel and participated actively in its research and development programs. He came with Arkla in 1957, when Servel's air conditioning division was acquired by Arkla. A native of New York, Mr. Heath holds both a B.S. degree in electrical engineering from Rutgers University and a law degree from New York University.

A widely recognized authority in the gas measurement field, Mr. Gilmore has been associated with the gas and oil industry for 41 years. He has held various engineering and managerial posts, including chief engineer of Rockwell Manufacturing Company and Lancaster Meter Parts Company in Tulsa, Okla. He joined Arkla in 1959.

Mr. Wepfer joined Arkla as sales manager shortly after it acquired the air conditioning division of Servel, Inc., at Evansville, Ind., in 1957, and subsequently established the company's national sales offices in Little Rock.

Broggi promoted

D. E. Broggi

STOCKHOLDERS OF American Meter Company, Inc., world's largest manufacturer of gas meters, recently voted to increase its board of directors to 10 members, and elected Dante E. Broggi to fill the new post created.

Mr. Broggi is a vice president of the company, and has been active in the firm's expansion and diversification program. Recently, the corporation entered the field of liquid measurement and control, manufacturing meters for water utilities, industrial processing applications, and petroleum production and marketing activities.

Welly made manager

T. J. Welly

THE APPOINTMENT of Thomas J. Welly, of Toledo, as manager of corrosion protection products sales of Owens-Corning Fiberglas Corp., was announced recently.

His principal duties will be in sales of Fiberglas pipeline wraps for underground protection and Fiberglas reinforced plastic anti-corrosion products including pipes and tanks.

As advertising supervisor for the Fiberglas sales to manufacturers division, immediately prior to his new appointment, Mr. Welly gained considerable knowledge of Fiberglas corrosion protection products and edited the latest Fiberglas technical publication about underground pipe wrap products.

Mr. Welly has been with Fiberglas since his graduation from Notre Dame University in 1955. He spent three years in the U. S. Navy, receiving his discharge in 1959 as a lieutenant junior grade.

Midwest GAES elects

THE MIDWEST chapter of the Gas Appliance Engineers Society has installed its new officers for 1961.

They are: William H. Patrick, president; Willard E. Kendall, vice president; Paul F. Nesse, secretary; D. D. Dennis, treasurer; Robert Lunoe, first year trustee; D. Culligan, second year trustee, and W. F. Bohn, third year trustee.

The Gas Appliance Engineers Society is composed of a group of gas appliance engineers and sales engineers. Anyone in this field of engineering, who is interested in becoming a member, should write to W. E. Kendall, chairman of new membership committee, c/o Aero-Matic Engineering Co., Inc., Merchandise Mart, Chicago 54, Ill.

Bryant names Trevor

EARL R. TREVOR has been appointed director of manufacturing of Bryant Manufacturing Company. In his new position, Trevor will have over-all responsibility for manufacturing a full line of products, including gas and oil-fired furnaces, electric and gas air conditioning, boilers, automatic valves and pilot lights and air-drying equipment.

Mr. Trevor has been with Bryant since 1954 and has held a number of key positions in manufacturing and management planning. For two years, he was vice president of Bryant Manufacturing Company, Ltd., the Canadian subsidiary in Toronto.

Prior to joining Bryant, Mr. Trevor was associated with the Bulova Watch Company and with Landers, Frary & Clark. He also served four years in the United States Air Force in airways communications.

A native of Providence, Rhode Island, Mr. Trevor is a graduate from Bryant College in that city, receiving his bachelor of science degree in business administration in 1940.

Western Power and Gas Co. elects McGraw, Large

AT THE FIRST board of directors meeting under the new corporate name, Western Power & Gas Company (surviving corporation resulting from the merger of Southern Colorado Power Company into Central Electric & Gas Company, which was effective May 1, 1961), Max McGraw, Dundee, Illinois, was elected chairman of the board of directors and Judson Large, Chicago, president of Western Power & Gas Company.

The merger of Southern Colorado Power Company, with headquarters in Pueblo, Colorado, into Central Electric & Gas Company, with headquarters in Lincoln, Nebraska, was overwhelmingly approved by the stockholders of both companies at their separate meetings on February 28, 1961. Incidental to the merger, the name of Central Electric & Gas Company was changed on May 1, 1961, to Western Power & Gas Company . . . a more descriptive name for the company as to area, increased facilities and resources.

The merger had no effect on the telephone subsidiaries of Central Electric & Gas Company, which now are subsidiaries of Western Power & Gas Company. Southern Colorado Power Company, having been merged into Central Electric & Gas Company, ceased to exist as a separate corporation on May 1, 1961 and is now operating as the Southern Colorado Power Company Division of Western Power & Gas Company.

Post in new position at Robertshaw-Fulton

FRANK H. POST, vice president and general manager of Robertshaw-Fulton's Robertshaw Thermostat Division in western Pennsylvania, will move to the company's corporate headquarters on or about June 15 as vice president, marketing.

Thomas T. Arden, president of Robertshaw-Fulton, said that Mr. Post will organize a new national sales organization to market several new lines of Robertshaw products. Mr. Post also will participate in the administration of Robertshaw's overseas activities, which now embrace manufacturing plants in eight countries.

Arnold C. Hansen, who has been assistant to the general manager of Robertshaw-Fulton's Grayson Controls Division at Long Beach, California, will take over Mr. Post's responsibilities as general manager at the Robertshaw Thermostat Division. Mr. Hansen has been elected an assistant vice president of the corporation.

Mr. Post, a native of Barron, Wisconsin, attended Marquette University, where he studied mechanical engineering.

With Robertshaw-Fulton and its predecessor companies, Mr. Post has served successively as division sales manager, assistant vice president, and vice president and general manager.

Waste King Universal appoints four, names new vice president

APPOINTMENT of four executives—to head sales of Universal by Waste King Universal free-standing gas ranges was announced today by Bertram Given, president of Waste King Corporation, Los Angeles.

At the same time, Mr. Given reported that Fred DeRango, veteran appliance sales executive, has been named a vice president of Waste King Corporation in charge of commercial disposer and cooking equipment sales.

Heading the list of four free-standing specialists appointed to new positions is Allan A. Barnhart, now vice president-sales, Cribben and Sexton Company, and national sales manager for Universal by Waste King Universal free-standing ranges. Cribben and Sexton is a subsidiary of Waste King Corporation.

Named regional sales managers, free-standing gas ranges, with direct-line responsibility to Barnhart are James J. Marcus, west and southwest region; William M. O'Connell, eastern region, and John G. Schellenberg, central region. Mr. Schellenberg has 39 years' experience in the gas industry; Mr. O'Connell, 25; Mr. Marcus, 16, and Mr. Barnhart, 12.

Commonwealth elects three

J. A. ELZI, M. C. Westrate, and C. E. Asbury have been elected vice presidents, while C. H. Alban and E. Weatherly, Jr. have been named directors of Commonwealth Associates Inc., according to J. R. North, president. Mr. North also reports that J. A. Meader, an architect, was elected assistant secretary.

Mr. Elzi will continue to serve as director of engineering administration, and Mr. Westrate as treasurer and chief consulting engineer. Mr. Asbury continues his duties as chief electrical design engineer. Mr. Alban, who was recently elected a director of Commonwealth Services Inc., is also assistant treasurer and chief structural design engineer of Commonwealth Associates. Mr. Weatherly is a project manager.

Other directors re-elected include C. D. Birget, J. A. Elzi, J. R. North and M. C. Westrate.

Edwards retires

E. D. EDWARDS, a dedicated employee and officer of Central Illinois Light Company for 38 years, has retired.

Mr. Edwards first joined CILCO in 1923 as chief engineer of the Pekin Steam Electric Station. In 1924, he transferred to R. S. Wallace Station as chief operating engineer, and two years later became superintendent of the station.

He became vice president in charge of electric and heating operations in 1951 and was elected a director of the company in 1954, becoming president two years later. In 1960, he assumed the additional duties of chairman of the board, serving in this dual role until the annual meeting last March when his successors were named.

On May 1, 1961, when E. D. Edwards retired from CILCO, the generating station named in his honor celebrated its first anniversary.

Seven new appointments at Lone Star Gas Company

LONE STAR Gas Company has announced seven new appointments. A. W. Breeland, Charles G. Barndt, and L. B. Thaxton have been elected to general officer positions and John Perryman has been named director of Lone Star's new area development department.

L. T. Potter, president, said Mr. Breeland was elected vice president, personnel, and Mr. Thaxton was elected treasurer. Mr. Breeland formerly was assistant personnel director and Mr. Thaxton, assistant treasurer.

Mr. Barndt, former director of promotion, was elected to the newly created position of vice president, promotion. The new position was created because of increased responsibilities reflected in the company's enlarged promotion program that went into effect throughout Lone Star's system in April last year, Mr. Potter said.

Mr. Perryman joined Lone Star in 1954 as sales and promotion manager of the company's West Texas region of distribution. He was named head of the Dallas sales and promotion activities in 1956.

Prior to joining Lone Star, Mr. Perryman gained an outstanding reputation in the field of community development and promotion, while serving as city manager in Brownwood and later in Paris, Texas.

L. A. Bickel, vice president-Dallas division, named personnel changes in his area.

John F. Moore, former chief engineer, is now general sales and promotion manager. The division's industrial department becomes a section of the sales and promotion department under supervision of A. B. McCurdy, division industrial engineer.

B. R. Hatley, former assistant general sales and promotion manager, is merchandise sales manager.

H. A. Connor, former supervisor of the architect and builder assistance section, becomes promotional projects manager. Mr. Connor is responsible for activities of the architect and builder, commercial and dealer assistance sections.

Robert Dunbar promoted

R. J. Dunbar

THE ELECTION of Robert J. Dunbar as vice president of Algonquin Gas Transmission Company of Boston has been announced by George R. Copeland, president of the company.

Mr. Dunbar, a resident of Wellesley, Massachusetts, was elected at a recent meeting of the board of directors. Before joining Algonquin in 1952, Mr. Dunbar was assistant chief engineer of Commonwealth Natural Gas Corp., Richmond, Virginia.

Since joining Algonquin, Mr. Dunbar has successively held the positions of measurement superintendent, pipeline superintendent, and general superintendent.

As vice president-operations, Mr. Dunbar will supervise the compression, dispatching, engineering, measurement and pipeline departments.

Texas Gas Transmission elects three new officers

THE BOARD of directors of Texas Gas Transmission Corporation of Owensboro, Ky. has elected Virgil W. Meythaler and Franklin K. Rader, Jr. to the newly created positions of senior vice president, and has appointed Henry F. Keith a vice president.

Mr. Rader became vice president of Texas Gas on June 11, 1957, after a period as assistant to the executive vice president. He joined the company in 1952 as gas supply contract representative, and became assistant to the vice president and treasurer in 1953.

A native of Dallas, Texas, Mr. Rader was graduated from Southern Methodist University in accounting and finance in 1941, and received a law degree from Harvard University in 1948. His early experience in the natural gas industry was gained through gas contract negotiation for the Shell Oil Company, prior to his association with Texas Gas.

Mr. Meythaler, whose accounting experience dates to 1941, following his graduation from the University of Illinois, has been vice president of Texas Gas since January, 1959. He had been elected treasurer in 1955, and assistant treasurer in 1953, after serving as supervisor of budgets and special studies from the time he joined the company in 1949.

Born at Abingdon, Illinois, Mr. Meythaler's early work experience was gained with Arthur Andersen & Co., public accountants, in its Chicago office. He later was employed in general accounting by Hart Carter & Co., Peoria, Ill., the Monelle Corporation of Rochelle, Ill., and W. E. Krieger, certified public accountants of Peoria.

Mr. Keith is in charge of the company's purchasing, stores and aviation departments. He joined a predecessor company of Texas Gas in 1929, and was named assistant treasurer and director of purchasing, stores and transportation in 1947.

Mr. Keith is a native of Bath, Illinois.

McLaughlin named manager

WILLIAM R. McLAUGHLIN has been appointed manager of the newly created new products division for Rockwell Manufacturing Company's meter & valve division.

Mr. McLaughlin, who has been regional sales manager—southwestern region for the meter & valve division, will operate out of Dallas and be responsible for the coordination of research and development, field testing, production and sales promotion for all new meter and valve division products.

Mr. McLaughlin joined Rockwell in 1934 as gas products supervisor, was named gas products manager in 1945, Dallas district manager in 1952, and to his most recent position in 1954.

A native of Erie, Pa., he is a member of the Southern Gas Association, American Gas Association, A.P.I., Independent Gas Association and the Gild of Ancient Supplers.

Ellenberger elected vice president, Williams retires at Worthington Corporation

F. A. Ellenberger

S. R. Williams

FRED R. ELLENBERGER has been elected vice president—international operations, Worthington Corporation, it has been announced by Walther H. Feldmann, the company's president. Mr. Ellenberger succeeds S. Riley Williams who has reached his normal retirement date after an outstandingly successful career devoted to building the company's overseas manufacturing and sales operations, which now comprise 15 plants in 13 foreign countries. Mr. Williams will continue with Worthington as vice president—consultant.

Mr. Ellenberger joined Worthington in 1938 as secretary to Hobart C. Ramsey, who now is chairman of the corporation. Subsequently, he served in a number of domestic assignments before joining the company's export division in 1946. Mr. Ellenberger became vice president and general manager of Worthington (Canada) Ltd. at Brantford, Ontario in 1955, returning to the company's headquarters in 1960 as assistant vice president—international operations.

In 1947, Mr. Ellenberger graduated from Newark College of Engineering with the degree of Bachelor of Science in Mechanical Engineering. He is a member of the Ontario Association of Professional Engineers and the American Society of Mechanical Engineers.

Mr. Williams first joined Worthington in 1920 after graduation from Louisiana State University and service as a First Lieutenant, A.E.F., World War I. He served in the company's overseas operations in Europe from 1920 to 1941, when he returned to the United States to become assistant to the vice president for operations and was elected vice president—international operations in 1947.

He is a member of the National Association of Manufacturers, National Foreign Trade Council, International Management Association, the Baltusrol Golf Club, and the Essex Club of Newark, New Jersey. Mr. Williams resides at 129 Whittredge Road, Summit, N. J.

Former Secretary Anderson rejoins board at Dresser

R. B. Anderson

FORMER SECRETARY of the Treasury Robert B. Anderson has rejoined the board of directors of Dresser Industries, Inc.

In commenting on Mr. Anderson's election, H. N. Mallon, chairman of the board of Dresser, stated, "Dresser is indeed fortunate to have Mr. Anderson rejoin its board of directors. Aside from his extensive background in industry, there are few who possess so extensive a knowledge of international financial affairs and have such good judgment regarding domestic and world developments."

Mr. Anderson, prior to his appointment as Secretary of the Treasury, had served as Secretary of the Navy and Deputy Secretary of Defense. In addition to his government service, Mr. Anderson has an outstanding career in the oil business as attorney and general manager, W. T. Waggoner Estate, vice president, Associated Refineries, Inc., director, Southwestern Bell Telephone Co.

Hope announces three management changes

PRESIDENT E. Wayne Corrin of the Hope Natural Gas Co. has announced three important management changes approved by the board of directors.

M. Kirk Hager of Houston, Texas, was elected executive vice president and chief operating officer of the company and a member of its board of dirctors. He comes to Hope after 27 years experience in the natural gas business, most recently as vice president in charge of operations for the Panhandle Eastern Pipe Line Co. and manager of contracts for the Columbia Gas System Service Corp.

Benjamin H. Cooksey, Jr., of Clarksburg, who is presently employed by Hope as manager of budget control and planning, was appointed to the re-established position of general superintendent. He will be closely associated with Mr. Hager in directing the extensive and varied activities of Hope's operations department.

Don C. Wise of Pittsburgh was appointed to succeed Mr. Cooksey as manager of budget control and planning. He comes to Hope from New York State Natural Gas Corp., a sister company in the Consolidated Natural Gas System, where he holds the position of manager of operating plans and budget.

NFPA appoints Segeler

GEORGE SEGELER, director, Utilization Bureau, A. G. A. has been named to the board of directors of the National Fire Protection Association, a non-profit technical and educational organization, which provides the country's fire safety standards.

Mr. Segeler is a veteran of almost 30 years in fire protection, and has represented the gas industry on many NFPA committees.

In addition to his work on fire protection standards, Mr. Segeler directs the technical assistance operations of A. G. A. Under his leadership, the Utilization Bureau directs comparative tests of gas and competitive fuels, acts as a liaison with the American Standards Association, and performs many technical jobs vital to the gas industry.

Keefe is vice president

THE ELECTION of William C. Keefe as vice president and secretary of Panhandle Eastern Pipe Line Company and of its wholly-owned subsidiary, Trunkline Gas Company, has been announced by William G. Maguire, chairman of the board.

Mr. Keefe, who joined Panhandle Eastern in 1950, was named secretary of the company and its subsidiary in 1956. He is a graduate of the University of Notre Dame and Harvard Law School.

Names in the news—a roundup of promotions and appointments

UTILITY

Boston Gas Company has announced seven new appointments.

James K. Beith, assistant superintendent of the customers' accounting division, has been named superintendent of the section. **Richard J. Mahoney,** assistant superintendent of the customers' accounting division, became superintendent of the data processing section.

Frank J. Maguire, assistant superintendent of the collection-meter reading division, has been appointed manager of the customer contact division, and will be responsible for collection-meter reading and investigation application sections.

Albert E. Donehey, superintendent of the general accounting division, has been promoted to manager of the financial division, and will be responsible for the general accounting and cashier's sections. **J. Robert O'Keefe,** superintendent of the customers' accounting division, has been named manager of the customer accounting-data processing division.

Harry T. Byorkman, assistant superintendent of the general accounting division, has risen to superintendent of the section. **James S. Baird,** assistant to the superintendent of collection-meter reading, became assistant superintendent of the section.

Appointment of **George W. Anders** and **Richard C. Young** to the newly created positions of staff assistants to the president of Texas Gas Transmission Corporation has been announced.

William H. Loving, has been promoted to industrial and commercial sales manager of the Washington Gas Light Company.

Mr. Loving succeeds **Edward V. Fineran,** who was recently assigned to a new position in the sales planning and development unit of the company.

Public Service Electric and Gas Company has appointed **Edward F. Watson** division plant superintendent, Paterson gas plant, and made **T. Laurence Powers** safety engineer, gas department, general office.

Two veteran members of Lone Star Gas Company's personnel department have assumed new positions with the company.

Dan M. Cole is now assistant director of personnel.

W. Alton Allred is manager of the safety section-personnel.

Everett M. Holwick has been elected assistant comptroller of Northern Illinois Gas Company.

Central Illinois Light Company has appointed **Oscar L. Sundstrom** assistant operating vice president, and promoted **A. Herbert Davis** to general superintendent of electric production and transmission.

Replacing Davis as chief engineer of the company's Edwards station, is **William T. Reid, Jr.**

Bernard H. Kinzer, director of employee relations, Columbia Gas System, has been elected president of the New York Personnel Management Association.

MANUFACTURER

H. P. Schoerner has been appointed manufacturing manager of the Day and Night Manufacturing Company production facilities in La Puente, Calif. He succeeds **Harold Clifton,** who died recently.

Herbert K. Anspach, assistant general counsel for Whirlpool Corporation the past two years, has been appointed assistant secretary of the company, and **Curvin J. Trone, Jr.,** assistant to the president of Whirlpool, has been elected to the board of directors of Multibras Industria de Aparelhos Domesticos Ltda., Sao Paulo, Brazil, Latin America's largest full line major home appliance manufacturer.

Appointment of **Owen Desmond** as director of wholesaler relations for Modine Manufacturing Company, has been announced.

Ray B. Hayter has been promoted to manager of General Controls Company's Wichita, Kansas branch office.

Richard T. Alt has been appointed eastern district manager for superior meter division of Neptune Meter Company.

OTHER

Samuel B. Barley has succeeded **B. Frank Albanese** as LPG sales manager at headquarters of the Esso Standard Division, Humble Oil and Refining Company. Mr. Albanese, a veteran Esso marketer, retired May 31.

A. W. Breeland, T. S. Bacon, and **Charles G. Barndt** were elected directors of Lone Star Producing Company.

Speer appointed

F. A. Speer

FRANK A. SPEER has been appointed vice-president and works manager of Mueller Co., Decatur, Ill. Mr. Speer, formerly plant manager of the New Castle, Pa. plant of Chicago's Crane Co., will direct manufacturing operations for all Mueller Co. domestic facilities.

Mr. Speer, a native of the Pittsburgh area, has had nearly 25 years of foundry and machine shop experience. He was with Westinghouse Electric Manufacturing Co. at East Pittsburgh from 1936 to 1951, when he joined the Bucyrus Erie Corp., Erie, Pa., as production manager. In 1954 he became general superintendent of that firm, and in 1957 was named chief management officer of the New Castle plant.

San Diego elects Dillin

H. G. DILLIN has been elected president of San Diego Gas & Electric Company.

Mr. Dillin, who has been serving as executive vice president, succeeds E. D. Sherwin, who retired from the post of president after 41 years' service with the company. Mr. Sherwin will continue as a member of the board of directors and of the executive committee.

Mr. Dillin's association with San Diego Gas & Electric Company dates back 37 years, when he was first employed as a draftsman. During the following years, he has served successively as salesman, contract clerk, engineer in charge of rates, commercial manager, and vice president in charge of sales. In 1953 he was named executive vice president.

Mr. Dillin is currently president, Pacific Coast Gas Association and vice president and director, Pacific Coast Electrical Association. He is past president of the Electric Club of San Diego.

Dillin has been active in civic and community affairs for many years.

Southern Union Gas elects directors, officers

STOCKHOLDERS of Southern Union Gas Company at their annual meeting held recently in Dallas elected the following men as directors of the company: James C. Reid, Wofford Cain, Scott Hughes and J. Glenn Turner, all of Dallas; Franklin W. Denius of Austin and John T. MacGuire and Thornton Hardie, both of El Paso.

At a meeting of the directors subsequent to the stockholder meeting, the following were elected as officers of Southern Union: Wofford Cain, chairman of the board; James C. Reid, president; Scott Hughes, executive vice president; D. M. Bailey, executive vice president; J. Glenn Turner, general counsel; N. P. Chesnutt, vice president and operating manager, and A. M. Wiederkehr, vice president, exploration and gas supply.

Also re-elected as officers were H. V. McConkey, secretary and treasurer; B. F. Wombacker, controller; A. S. Grenier, general attorney; F. D. Bradley, purchasing agent and assistant treasurer, and E. O'N. Johnson, assistant secretary.

Completing the company's officer group were J. R. Cole, III of Santa Fe, N. M., renamed senior vice president; Tom Corr of Albuquerque, N. M. as vice president, division and E. M. Kelley of El Paso, Texas as vice president, division.

OBITUARY

J. Donald Preble

J. D. Preble

supervisor of utilization and training, Northern Illinois Gas Company, died April 28.

Mr. Preble lived in LaGrange, with offices in Bellwood, Ill. He began his career in 1924 and served in various gas sales capacities for the Public Service Company until 1927, when he became gas house heating specialist. He held numerous gas heat engineering posts in Chicago and Maywood before he became domestic engineer in the operating department in Oak Park in 1941.

Mr. Preble was named gas utilization engineer in 1950, and then supervising engineer in the operations department in 1952, when his offices were moved to Bellwood. He took over his present duties with Ni-Gas in 1954, when electric and gas operations were separated.

He was a member of the American Society of Heating and Refrigeration Engineers, and chairman of the A. G. A. Subcommittee on Listing and Installation Requirements for Domestic Gas Conversion Burners.

Frederick A. Lydecker

retired vice president in charge of gas operations for the Public Service Electric and Gas Company of New Jersey, died May 14.

Mr. Lydecker joined Public Service in 1908, a year after he was graduated from Stevens Institute of Technology. He worked as a cadet engineer, and later served as superintendent of distribution. He was elected vice president in charge of gas operations and a director of the corporation's subsidiary companies in 1945, after serving as assistant vice president in charge of gas operations.

Mr. Lydecker was an active member of A. G. A. for almost 40 years.

CONVENTION CALENDAR

1961

JUNE

20-22 •Boston Corrosion Course, Wentworth Institute, Boston, Mass.

21-23 •Canadian Gas Association, Annual Meeting, Banff Springs, Alberta, Canada

22-23 •PCGA-A. G. A. Western Regional Public Relations Workshop, St. Francis Hotel, San Francisco, Calif.

26-28 •American Society for Heating, Refrigerating & Air Conditioning Engineers, Annual Meeting, Denver, Colo.

26-27 •Michigan Gas Association, Annual Meeting, Grand Hotel, Mackinac Island, Mich.

26-30 •Second Energy Institute, The American University, Washington, D. C.

27-30 •American Home Economics Association, Annual Convention, Cleveland, Ohio

28 •8th International Gas Conference, Stockholm, Sweden

SEPTEMBER

3-6 •ASAE Annual Meeting, Denver Hilton, Denver, Colo.

7 •Rocky Mountain Gas Association Annual Banquet, Denver Hilton Hotel, Denver, Colo.

11-13 •Annual Accident Prevention Conference, Statler Hilton Hotel, Dallas, Texas

12-14 •Mid-West Gas Association, School and Conference, Ames, Iowa

13-15 •PCGA Annual Convention, Coronado Hotel, Coronado, Calif.

15-16 •Maryland-District of Columbia Utilities Association, Fall Conference, Cavalier Hotel, Virginia Beach, Va.

17-19 •Independent Natural Gas Association of America, Houston, Texas

18-22 •A. G. A. Industrial Gas School, Marriott Motor Hotel, Philadelphia, Pa.

20-22 •Southeastern Gas Association, Annual Meeting, Roanoke, Va.

OCTOBER

1-4 •A. G. A. Annual Convention, Dallas, Texas

3-4 •Ninth Annual Gas Measurement Institute, Liberal Kansas

Personnel service

Betty Jacobsen, Editor

SERVICES OFFERED

Manufacturing Management—one of the nation's largest manufacturers of central heating and air conditioning equipment wishes to help exceptionally capable executive who must relocate. Steady progression through positions of increasing responsibility over the past 13 years has given him a broad experience in all phases of manufacturing management. A strong administrator with heavy line experience. Age 41. **2019.**

Management, Operations Engineer—25 years distribution and production management for four gas properties of 60,000 customers. Capable of full charge of medium property. Well versed in natural gas, public, customer, and employee relations, leakage control (also Conseal), corrosion control, Hasche and propane peak shaving, system layouts, LP and natural gas operations, accounting, billing, budgeting. College, excellent health, age 55. **2020.**

Individual with 25 years supervisory experience with major gas company desires **Operational or Construction Work** with gas company or company associated with gas industry. Any position considered, if experience and talents can be utilized. Outstanding record in general operations, measurement, air conditioning sales and service, gas utilization and odorization. **2021.**

Management in Sales, Promotion, or Advertising—experience encompasses aforementioned. Age 37. Seek utility. Resume upon request. **2022.**

Consultant—executive with 30 years' experience available to act as consultant to companies starting to distribute natural gas. Experience covers metering from residential to purchase gas. Regulating gas pressures from high pressure to intermediate, to low pressure distribution pressures. Odorization in all its phases and controls. Twenty years' experience in organizing programs for "job descriptions, classifications and evaluation." **2023.**

Design and Development Engineer—graduate engineer with professional license. Fifteen years' experience consisting of A. G. A. testing, design and development of several lines of nationally marketed warm air heating equipment and supervisory experience up to division managership. **2024.**

Graduate, Gas Fuel Technology—from Southern Institute of Technology desires technical or technical sales position.. Married, two children, age 28. Will relocate. **2025.**

Director—Sales and Marketing—present position encompasses complete operations of commercial and industrial utility promotion, sales, and service. Unusual combination of engineering, strong sales and marketing background on top level. Seeking association offering challenging opportunities and growth potential. Age 41. Free to travel and/or relocate. Detailed resume on request. Salary open. **2026.**

Engineering and Management—15 years' experience in responsible office, field and shop engineering/management positions in oil/gas production/refining as well as manufacturing industries. Qualified to perform engineering/management work of a planning, organizing, developing, troubleshooting and implementing nature in the mechanical, maintenance, industrial, construction, and contracting fields. BSME and Purdue Graduate School. Age 38, family. Will relocate. Complete resume upon request. **2027.**

POSITIONS OPEN

Manager, Gas Distribution—experienced manager needed to assume full responsibility of sales and operations for Gulf Coast property. A minimum of five years directly related experience is required. Submit resume in confidence. **0972.**

Excellent Opportunity—open for young man, research minded; demonstrated or potential sales ability to represent national marketing research organization in utility and publishing fields. Must be intelligent, educated and possess initiative. Position is a training step for top job. Salary to start $6-8,000. **0973.**

Graduate Engineer—for "inside" technical sales training desired by engineering division of eastern manufacturer of industrial gas and oil burners. Potential sales engineer, age 25 to 35 desired. Experience with industrial burner application or associated equipment, i.e., industrial furnaces preferred. Contact W. N. Robertson, Hauck Manufacturing Co., 124 Tenth St., Brooklyn, N. Y. **0974.**

Sales Representatives—Florida natural gas utility has several immediate openings for individuals experienced and interested in commercial, residential and appliance sales. Age not factor provided applicant is in good health, successful sales background. These positions provide a base salary, car allowance and liberal commissions. Submit details of education and experience in reply. **0975.**

Sales Representatives—excellent opportunity for aggressive sales organization with background in gas-fired hydronic heating and cooling equipment now calling on jobbers, contractors, architects, builders and utilities. Able to organize sales meetings and render technical field service. Territory open—Alaska. **0976.**

Engineer, Gas Operations—graduate chemical, civil or mechanical engineer interested in the field of gas purchase, distribution and utilization. Duties involve engineering, operation and supervisory activities for an aggressive Southern New England natural gas company. Write stating age, experience and salary expected. **0977.**

Industrial Sales Engineer—permanent services in western utility converting to natural gas. Engineering degree preferred with experience in industrial, commercial, and central house heating sales and installations. Send full resume and photograph to: D. M. Pritchett, 550 California St., San Francisco 4, Calif. **0978.**

Corrosion Engineer—permanent position with large eastern gas utility. Graduate engineer, with a minimum of two years' experience in pipeline corrosion, to work with staff engineer on distribution corrosion. **0979.**

Gas Design Utility—large eastern gas utility needs experienced engineer to perform project design work for plant facilities, including power plant equipment, gas compressor stations, and related piping. Career position; no travel. **0980.**

Gas Engineer—a position is open for a graduate gas engineer with experience in the gas industry to become associated with a consulting engineering company in the New York area. Send resume of experience, qualifications and salary requirements. **0981.**

A. G. A. accident prevention film wins safety award

A FILM, sponsored by the American Gas Association, showing how to prevent accidents caused by static electricity, has been given an Award of Merit by the National Committee on Films for Safety.

"Static Electricity," produced with the cooperation of the U. S. Bureau of Mines, explores research by government and industry aimed at controlling static electricity.

The color and sound picture, which was produced for the Accident Prevention Committee of A. G. A. by Kennedy Productions, Inc., points out how to prevent fire and explosions in industry and the home caused by static.

The film committee, which represents 23 national organizations, makes awards annually for the best motion pictures on safety.

Prints of "Static Electricity" can be purchased for $200 from the Order Department, American Gas Association, 420 Lexington Ave., New York 17, N. Y.

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